Central Valley Habitat Joint Venture

North American Waterfowl Management Plan

Waterfowl 2000

News from the North American Waterfowl Management Plan • Volume 12 Issue 3 Winter 1999/2000

G.R. Zehm, U.S. Fish and Wildlife Service

Joint Ventures Implement the 1998 Plan Update

See center pullout

Highlights

Hogs Help Create a Wetland Complex

by Steve Moran, Rainwater Basin Joint Venture

Owen Nelson, general manager for Hastings Pork in Hastings, Nebraska, thought, "Treated effluent from an animal waste treatment system is called wastewater, but that doesn't mean it can't be put to beneficial use." And with that thought the Hayden Thompson Wetland Project was born.

Hastings Pork had the water and they had the land—it was a matter of putting the two together for a project to benefit waterfowl.

Hastings Pork had the water and they had the land—it was a matter of putting the two together for a project to benefit waterfowl. The land was formerly part of a Department of Defense Ammunition storage facility, where rows of concrete storage bunkers had been constructed. Dirt was taken from along side the bunkers to cover them. Pits were created as the dirt was removed. Nelson thought the pits could provide habitat if water could be delivered to the sites.

The project would require management of both water and vegetation to optimize conditions for waterfowl use. This required a blend of biological and engineering expertise. The Rainwater Basin Joint Venture partners helped Hastings Pork staff coordinate with State of Nebraska and federal wildlife and natural resource agencies, environmental consultants, and regulatory agencies to guide the project's design.

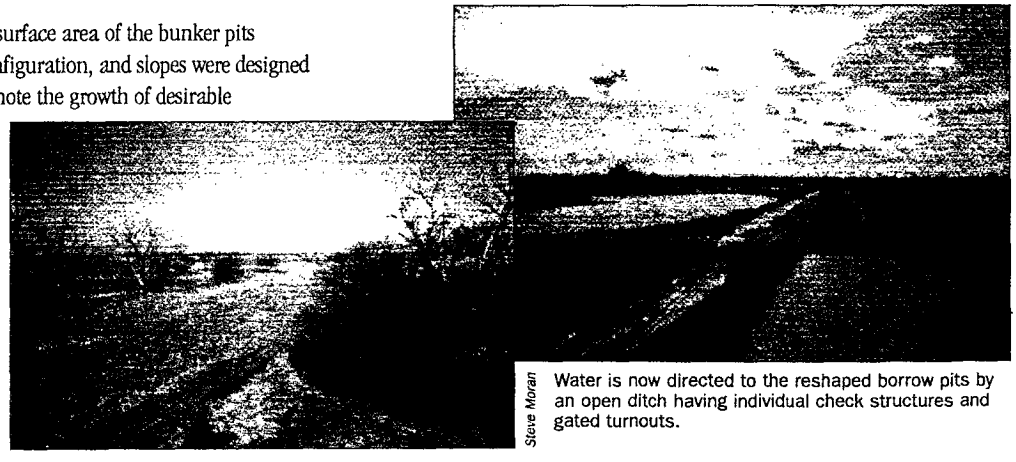
Basins were created by enlarging the surface area of the bunker pits and filling them with dirt. Depths, configuration, and slopes were designed to provide conditions that would promote the growth of desirable vegetation and allow for moist-soil management.

The need for flexibility in vegetation management required an adaptive water-delivery system. Open-ditch delivery systems, check structures, and gated turnouts were designed to allow for water management of each new wetland. Water now flows between wetlands through connecting channels having adjustable-water-control structures. The adaptive system supports vegetative diversity.

What began as an idea manifested into a 60-acre wildlife-habitat area including 18 acres of shallow-water wetlands and a water-control system that can deliver water to each of seven basins. The basins range in size from 1 to 4 acres with water depths of up to 18 inches.

This project proceeded from concept to completion because of the cooperative spirit between an inter-agency/interdisciplinary team of biologists, regulatory specialists, and engineers and Hastings Pork Staff. While their focus was on providing habitat for waterfowl and shorebirds, other wetland-associated wildlife will also benefit. So it looks like we've found yet another use for hogs—creating wetlands!

For more information, contact Steve Moran, Rainwater Basin Joint Venture Coordinator, Natural Resources Conservation Service, 2550 North Diers Avenue, Suite L, Grand Island, Nebraska 68803-1214, or call (308) 382-8112, or e-mail steve.moran@ne.usda.gov.



Steve Moran

Water is now directed to the reshaped borrow pits by an open ditch having individual check structures and gated turnouts.

Without being connected to surface water, deep, tree-filled borrow pits adjacent to abandoned ammunition storage bunkers provided minimal waterfowl habitat on Hastings Pork land.

Inside

Conversion: 1 hectare=2.47 acres — 1 kilometer=0.62 mile

Core Area of Washington's Trout Lake Freshwater Wetlands Protected

by DeAnn Johnigk, Washington Department of Natural Resources

Eighty-five percent of the core area of one of the two highest-quality freshwater wetland ecosystems remaining in south-central Washington State has been purchased with the help of a $450,000 North American Wetlands Conservation Act (Act) grant. Title to the 787 acres acquired through the Trout Lakes Wetlands Project will be held by the Washington Department of Natural Resources as part of the Trout Lake Natural Area Preserve.

Unknown

Lands protected in the Trout Lake Natural Area Preserve in south-central Washington State provide a staging area for sandhill cranes and breeding and foraging habitat for many wildlife species.

The State currently owns 919 acres within the planned 2,200-acre preserve. The existing ownership consists of predominately palustrine emergent marsh and palustrine forested wetlands, both decreasing types. These wetland ecosystems have retained their natural, dynamic character, in large part due to the presence of beavers and the absence of significant hydrologic alterations. These conditions have allowed stream channels to meander and change course, creating a complex mosaic of habitat types throughout the project area. The combination of high-quality emergent marshes, both coniferous and deciduous forested wetlands, and shrub patches provide habitat for a large number and wide variety of wildlife species.

These wetland ecosystems have retained their natural, dynamic character, in large part due to the presence of beavers and the absence of significant hydrologic alterations.

Over 150 species of birds are known to use the project area, many of them for breeding. Located in the Pacific Flyway, Trout Lake provides important feeding and resting habitat for migratory waterfowl and supports more than 45 species of neotropical songbirds, 8 of which have declining populations in Washington. The project area also provides a wintering-concentration area for bald eagles, a staging area for sandhill cranes, and breeding and foraging habitat for northern spotted owls, pileated woodpeckers, great blue herons, and many other wildlife species.

The site is important to wintering black-tailed deer and a large elk herd, that also uses it for spring foraging and calving. It is one of the three known sites in Washington where the Oregon spotted frog, a candidate species under the Endangered Species Act, is found. Recent counts of Oregon spotted frog egg masses in the project area have ranged from 570 to 850, three to five times the numbers observed at either of the other two known sites. It is the only Oregon spotted frog location in Washington that does not contain non-native bullfrogs, which feed on other amphibians and are one of the primary threats to the spotted frog.

The Nature Conservancy and Washington State Department of Natural Resources worked together on this project. They more than matched the grant amount with $1,262,050. Their efforts help the Pacific Coast Joint Venture in achieving its habitat conservation goals.

For more information, contact Craig Calhoon, Washington Department of Natural Resources, P.O. Box 47014, Olympia, Washington 98504-7014, or call (360) 902-1619, or fax (360) 902-1789, or e-mail craig.calhoon@wadnr.gov.

Good Plans Never Die. . .They Have a Long Shelf Life

by Mark Biddlecomb, Ducks Unlimited, Inc.

The complex of marshes that make up southeastern Idaho's Bear Lake National Wildlife Refuge (Refuge) are a vital link in a chain of waterfowl migration habitats that span the Pacific Flyway. Located north of the Great Salt Lake and south of Gray's Lake National Wildlife Refuge, the Refuge's substantial size and proximity to these other important wetland ecosystems provides important migration, staging, and breeding habitats for thousands of migratory birds.

Historically, the Refuge's wetlands encompassed more than 25,000 acres. However, a large irrigation and power-generation project completed in the early 1900s connected the wetlands to the Bear River, which resulted in the draining of about 8,000 acres of marsh. The connection to the Bear River allowed significant quantities of silt to be deposited in the remaining wetlands, degrading water quality and reducing plant productivity.

Control of carp, siltation, and water levels resulted in a remarkable 8- to 10-fold increase in annual waterfowl production within this unit.

Further exacerbating the problem, carp were introduced to the Bear River watershed and are now found throughout the Refuge. The foraging activities of these fish increase water turbidity, which causes a decrease in aquatic plant productivity. In addition, carp compete directly with waterfowl for the same food resources.

To counteract the deleterious effects of siltation and carp, Refuge personnel identified priority areas for restoration that could be isolated from the main marsh. The Rainbow Unit restoration was completed in the early 1980s. Control of carp, siltation, and water levels resulted in a remarkable 8- to 10-fold increase in annual waterfowl production within this unit.

With the resounding success of the Rainbow Unit, a plan for a second unit was developed. However, due to lack of funding, the Bloomington Unit plan was shelved for many years. But recently, the plan saw the light of day once again when the Refuge and Ducks Unlimited, Inc., decided to cost-share design development for the 1,900-acre Bloomington Unit. With the design completed, the partnership was expanded to include PacifiCorp and Idaho Department of Fish and Game, both of which helped to fund the project.

The design called for more than 5 miles of levee construction and several "fish-proof" water-control structures. Large projects have large budgets, however, and additional funding was needed. Ducks Unlimited submitted a North American Wetlands Conservation Act grant proposal with the hope of securing the additional dollars needed.

Partners received a grant of $467,897. They added another $1,160,000, and project construction began in the winter of 1998. Sixty percent of the work has been completed. When finished, the unit will be drawn down and water allowed to freeze to help reduce carp. Rotenone™ will be used to eliminate residual fish. Water quality and clarity are expected to improve almost immediately with carp removal, and if the Rainbow Unit was any indication, marsh productivity on the Bloomington Unit will increase dramatically during the next few growing seasons.

For more information, contact Mark Biddlecomb, Ducks Unlimited, Inc., Western Regional Office, 3074 Gold Canal Drive, Rancho Cordova, California 95670-6116, or call (916) 852-2000, or e-mail mbiddlecomb@ducks.org.

Water Storage Unit Creates Vast Marsh on Agency Lake

by Bruce Taylor, Oregon Wetlands Joint Venture

Purchased by the Trust for Public Land and resold to the U.S. Bureau of Reclamation (Bureau), the 7,159-acre Agency Lake Ranch, located on the northwest shore of the lake, is the Bureau's newest water-storage facility in Oregon's Klamath Basin.

Under the Bureau's proposed management plan for the former cattle ranch, livestock grazing was removed and diked pastures were flooded, creating a vast marsh similar to those that historically lined much of Upper Klamath and Agency Lakes. It is already drawing tens of thousands of waterfowl and other waterbirds. The management strategy is expected to maintain saturated soils on the property year-round and create a diversity of natural wetland habitats.

Under the management plan, up to 7,000 acre-feet of water accumulated during the winter months would be stored on the property until late spring, when water levels begin to drop in Upper Klamath Lake. The water would then be pumped into Agency Lake to supplement suppli for downstream water users.

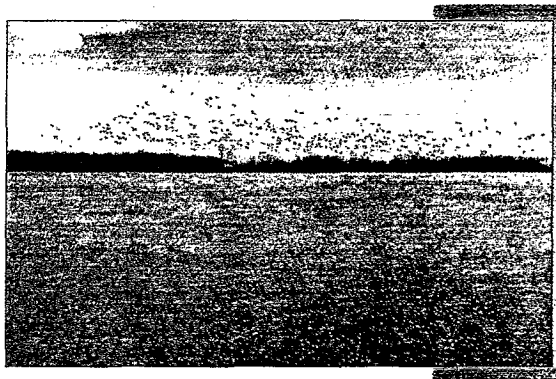
see Water Storage... on page

Largest Wetlands Restoration Project in Ohio's History Completed

by David Risley, Ohio Department of Natural Resources

Ohio has lost approximately 90 percent of its original wetland acres, ranking second only to California in that category, and its remaining wetlands are severely degraded.

In September 1997, the Ohio Division of Wildlife received a $993,450 North American Wetlands Conservation Act (Act) grant to undertake the largest habitat restoration effort in its history: the Big Island Wildlife Area Wetlands Restoration Project, located at the headwaters of the Scioto River in Marion, Ohio. Project partners have put the money to good use and achieved their conservation goals.



David Risley

On a landscape level, the Big Island Wildlife Area Wetlands Restoration Project increased habitat for 4 Federally listed endangered species and 21 State-listed endangered and threatened species.

Big Island Wildlife Area Wetlands Restoration Project Partners

Big Island Wildlife Area Wetlands Restoration Project partners matched the $993,450 North American Wetlands Conservation Act grant with nearly $4,000,000.

Ohio Division of Wildlife
Bill Oman, landowner
Ducks Unlimited, Inc.
Wildlife Conservation Fund of America
Wildlife Society - Ohio and Hocking College Chapters
Ohio Fish and Wildlife Management Association
Pheasants Forever - National, Ohio, and Seneca, Delaware, Logan, Wyandot, and Hancock Counties Chapters
Columbus Audubon Society
Quail Unlimited
American Cyanamid

On a landscape level, this project increased locally rare emergent wetlands and prairie, increased wildlife diversity, reduced the effects of wetland fragmentation, and increased habitat for 4 Federally listed endangered species and 21 State-listed endangered and threatened species. Partners restored 40 acres of open-water marsh, 260 acres of hemi-marsh, 40 acres of bottomland hardwood forest, and 2,074 acres of wet meadow. About 1,800 acres of wet meadow were seeded to native warm-season grasses. Numerous forbs were added to simulate the vegetative structure of Ohio's original prairie.

The project increased habitat for large numbers of waterfowl and songbirds that use the Scioto River as a migration corridor and wintering area. Grassland species also benefitted greatly since Ohio has lost more than 99.5 percent of its original native prairie and 2.5 million acres of grassland nesting cover. Over two-thirds of Ohio's threatened and endangered species rely on wetlands, grasslands, or a combination of both for nesting habitat.

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The project represented the second phase of a 4-year project to acquire and restore 2,766 acres of converted wetland/prairie complex which had been in agricultural production. Approximately 304 acres of emergent marsh, 2,074 acres of associated wetland prairie, 200 acres of upland prairies, and 40 acres of bottomland hardwoods have been restored, resulting in the largest prairie pothole/grassland ecosystem in Ohio.

For more information, contact David Risley, Assistant Administrator of Wildlife Management and Research, Ohio Department of Natural Resources, Division of Wildlife, 1840 Belcher Drive, Columbus, Ohio, 43224-1329, or call (614) 265-6330, or fax (614) 262-1143, or e-mail dave.risley@dnr.state.oh.us.

Water Storage... from page 4

The new water storage facility is part of a block of more than 28,000 acres of natural and restored wetlands that now line the shores of Agency Lake. The Bureau's property is bounded on the south by the 14,400-acre Upper Klamath National Wildlife Refuge, and on the northeast by the Bureau of Land Management's 3,300-acre Wood River Wetland. The Nature Conservancy's 3,600-acre Williamson River Delta wetland restoration project is just across the lake.

The Bureau's plan includes provision for a potential "phase two" development that would substantially raise and expand the ranch's existing system of levees to store up to 35,000 acre-feet of water. The Bureau says that proposal would require "significant financial investments." Some biologists have voiced concern that extended flooding at deep water levels could drown out the emergent marsh vegetation and reduce the site's value as wildlife habitat.

The new water storage facility is part of a block of more than 28,000 acres of natural and restored wetlands that now line the shores of Agency Lake.

For more information, contact Bob Davis, U.S. Bureau of Reclamation, 6600 Washburn Way, Klamath Falls, Oregon 97603, or call (541) 883-6935.

A Pre-emptive Strike in Montana's Beaverhead River Watershed

by Randy Renner, Ducks Unlimited, Inc.

Western Montana is quickly being transformed from a rural, agricultural landscape to a resort destination for retirees and wealthy individuals seeking a piece of the "last best place."

This transformation changes the character of the land by subdividing large ranches into smaller acreages on which seasonal or year-round homes are built. Natural wetland systems may be particularly hit hard by these activities as more water is diverted and consumed, artificial impoundments are created, construction work fills wetlands or degrades wetland quality, and horses and other livestock are enclosed in smaller pastures, resulting in overgrazing and streambank erosion.

The Beaverhead Wetland Protection Project partners plan to protect existing wetlands in the Beaverhead River watershed in Southwestern Montana through fee-title acquisition, purchased and donated easements, and long-term leases. Traditional wetland restoration and enhancement will be used to restore natural hydrology. The project occurs entirely within the Headwaters Focus Area of the Intermountain West Joint Venture and is part of ongoing Focus Area implementation planning.

In the first phase of this multi-year project, Trailsend Ranch donated to Ducks Unlimited, Inc., a perpetual conservation easement covering 3,300 acres of wetland and upland habitats along the Ruby River, a tributary of the Beaverhead River. Montana Department of Fish, Wildlife and Parks also acquired a 74-acre tract of riparian habitat along the Ruby River. The value of these acquisitions were used as match for a $1 million North American Wetlands Conservation Act (Act) grant.

Using Act funds and monies from the Land and Water Conservation Fund, project partners also acquired a 2,300-acre parcel of wetlands and uplands along the Beaverhead River near Dillon, Montana. Because of its attractive setting and proximity to town, the parcel was in danger of subdivision and development. Half of the area was overgrazed, with the concomitant riverbank erosion and wetlands degradation. With the help of The Conservation Fund, the Bureau of Land Management now holds title to the tract, which is adjacent to two State of Montana waterfowl management areas. The permanent protection of the tract will assure public access and provide the opportunity to restore and enhance palustrine wetlands, the riparian corridor, and adjacent uplands.

And as many sport fishermen know, the two rivers are home to a blue-ribbon trout fishery.

Beaverhead Wetland Protection Project Partners

Beaverhead Wetland Protection Project partners received a $1 million North American Wetlands Conservation Act grant. They added $3,651,350 to the grant request to accomplish their conservation objectives.

- Ducks Unlimited, Inc.
- Trailsend Ranch
- Bureau of Land Management
- Montana Department of Fish, Wildlife and Parks
- The Conservation Fund

The Beaverhead and Ruby Rivers' wetlands and uplands provide important migration and winter habitat for ducks, geese, hawks, bald eagles, peregrine falcons, songbirds, and sandhill cranes. During migration, an estimated 100,000 birds, including a significant number of trumpeter swans, pass daily through the two rivers' corridors. And as many sport fishermen know, the two rivers are home to a blue-ribbon trout fishery.

Partners of the Beaverhead project will continue their efforts to protect and restore the character of the land that has been so important to the wildlife and people who live there and for those just passing through.

For more information, contact Randy Renner, Ducks Unlimited, Inc., Great Plains Regional Office, Bismarck, North Dakota 58501, or call (701) 258-5599, or fax (701) 258-8364, or e-mail rrenner@ducks.org.

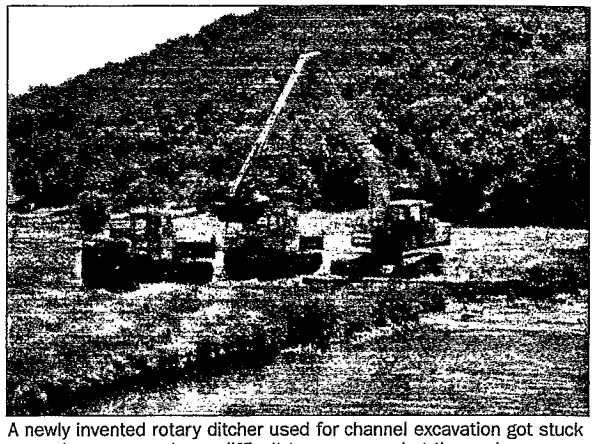
Partnership Makes Waves in California Marshes

by Barbara Salzman, Marin Audubon Society

San Francisco Bay's Rush Creek and Cemetery Marshes were diked in the 1920s to accommodate farming. Tide gates restricted seawater flow through the marshes—water quality deteriorated. Now, thanks to the North American Wetlands Conservation Act's (Act) Small Grants Program and a determined partnership, tidal influx has been greatly improved. It has taken 2 years to enhance the marshes, and the effort has not been without its challenges.

Engineering, supervision, and system calibration work for the project was funded by the Marin Community Foundation. Construction work was initiated with funding from a San Francisco Bay Regional Water Quality Control Board program, which allows water-quality violators to implement projects to benefit the environment in lieu of paying a fine. Fifty-two thousand dollars from two developers responsible for extensive siltation in several marshes was going to be used to change tide gates to combination slide-flap gates.

If this project proves anything, it is that partners have to be flexible and maintain a sense of humor.



Barbara Salzman

A newly invented rotary ditcher used for channel excavation got stuck more than once and was difficult to maneuver, but the work was completed.

However, engineers, in a change of plans, decided that only one gate to Rush Creek should be replaced and that channels should be excavated in both marshes to improve circulation. The change meant more money was needed. . . .$102,000 more. The Act's grant and the Coastal Conservancy filled the void.

As construction began, contractors discovered that the culvert on which they were to place the new gate had rotted away and the old gate had fallen off. The Marin County Flood Control District found funds to replace the culvert. Then, as the contractors excavated to install the pipe they dropped a piece of equipment on an adjacent culvert and had to replace that too—at their own expense.

As the work moved along, it became clear that the levee in which the culverts are located had been badly eroded. It made sense to add levee repair to the project. The Coastal Conservancy came to the rescue with additional funds for repair work. It didn't end there. A newly invented rotary ditcher used for channel excavation got stuck more than once and was difficult to maneuver, but the work finally was completed.

System calibration will begin shortly, after which a management plan will be prepared to guide operation of the gates based on habitat, flood control, water-quality, and mosquito abatement goals.

As for wildlife, Rush Creek Marsh has a large expanse of shallow water free of vegetation—a necessity for foraging shorebirds. And both marshes also have deeper areas with ample amounts of vegetation around the edges and on higher ground, making them good habitat for waterfowl, like northern pintail, cinnamon teal, ruddy duck, mallard, and Canada goose. Bird watchers will find grebes, egrets, herons, white pelicans, moorhens, terns, Virginia rails, common moorhens, killdeer, and black-necked stilts taking advantage of what the marshes have to offer.

If this project proves anything, it is that partners have to be flexible and maintain a sense of humor. There is an anonymous quotation that speaks to the partners of the Rush Creek and Cemetery Marshes Enhancement Project: "Accept the challenges, so that you may feel the exhilaration of victory." When partners watch the birds making use of the wetlands, they know the feeling.

For more information, contact Barbara Salzman, Marin Audubon Society, P.O. Box 599, Mill Valley, California 94942, or call (415) 924-6057, or fax (415) 927-3533.

Rush Creek and Cemetery Marshes Enhancement Project Partners

The Rush Creek and Cemetery Marshes Enhancement Project Partners matched a $48,000 North American Wetlands Conservation Act grant with $135,465.

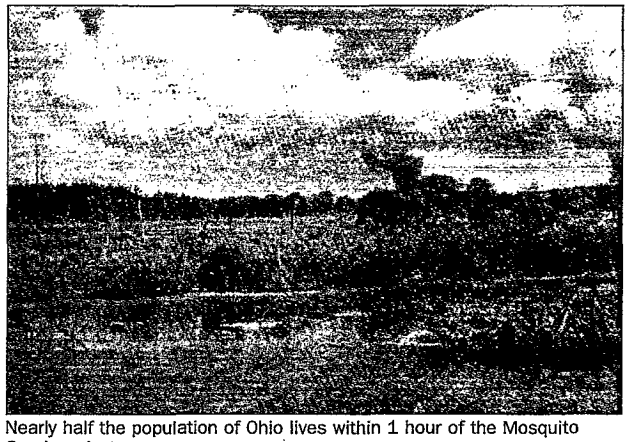
- Marin Audubon Society
- San Francisco Bay Regional Quality Control Board
- Marin Community Foundation
- Coastal Conservancy
- Marin County Flood Control District
- California Department of Fish and Game
- Marin County Open Space District
- U.S. Fish and Wildlife Service, Coastal Ecosystems/San Francisco Bay Program
- Marin County Fisheries and Wildlife Committee

Making Room for Wetlands and Wildlife Just Outside Urban Ohio

by David Risley, Ohio Department of Natural Resources

In early 1996, the Ohio Division of Wildlife and its partners received a $170,000 grant under the North American Wetlands Conservation Act (Act) to restore and enhance over 1,000 acres of wetlands within the Lake Erie coastal watershed. As part of the Mosquito Creek/Grand River Coastal Wetland Restoration Project, 664 acres of wetlands on Mosquito Creek Wildlife Area were restored and another 250 acres were enhanced. In addition, 150 acres on Grand River Wildlife Area—just 2 miles away—also were restored. Whereas most of the restored acres were emergent marsh, other habitat types included 60 acres of wet meadow and 150 acres of aquatic beds.

This project area is unique because despite both its proximity to several of Ohio's major population centers and encroaching agricultural and urban development, it has remained large enough to have significant wildlife benefits. Mosquito Creek and Grand River Wildlife Areas are within an hour's drive from nearly half the population of Ohio and receive a high volume of public-recreation use.



Ohio Division of Wildlife

Nearly half the population of Ohio lives within 1 hour of the Mosquito Creek project area.

Yet, these areas persist as unique centers of biodiversity, inhabited by 24 species of mammals, 26 species of reptiles and amphibians, 80 species of butterflies and skippers, 63 species of fish, and nearly 250 species of birds—85 of which rely on these areas as their breeding grounds. Among the species benefitting from the restoration efforts of this project are two Federally listed endangered species, seven State-listed endangered and threatened wildlife species, and six endangered and threatened plant species.

Today, the Lake Erie shoreline is one of the fastest developing coastal areas in the Great Lakes region. Land characterized as wetlands are at a premium due to development pressures along the lake, especially in northeast Ohio. Consequently, the Lake Erie watershed has been identified by many land-management and conservation organizations as a critical area in need of wetland protection, restoration, and enhancement.

Much of the project area had previously been drained or the hydrology altered and had ceased to function as a

see Making Room... on page 9

Curbing the Assault on Lake Michigan's Coastline

by Tim Grunewald, Wisconsin Department of Natural Resources

The Southeast Wisconsin Coastal Habitat Project, located along Wisconsin's eastern shoreline, was a landscape-conservation effort conducted between 1993 and 1998. Over the course of the project, partners received $1.2 million in grants under the North American Wetlands Conservation Act, which they matched with nearly $2.5 million. Their overall goal was to protect, restore, and enhance wetlands and associated uplands threatened by development along coastal Lake Michigan and in Green Bay watershed basins.

The project area contains some of Wisconsin's best duck-producing habitat and shorebird and songbird migratory habitat. These wetlands are located in the fastest developing area of the State and were in danger of being irreversibly converted to other land uses. Water pollution was another concern. The rivers that flow through the project area into Lake Michigan and Green Bay have been carriers of significant industrial and municipal pollution for the past 20 years or more. Even though industrial discharges into the watershed's rivers have been drastically reduced in recent times, non-point pollution and toxic substances stored in sediments continue to be a problem in the watershed.

These wetlands are located in the fastest developing area of the state and are in danger of being irreversibly converted to other land uses.

Project partners made a frontal attack on the threat of development by acquiring 1,914 acres of wetlands and associated uplands in fee-title and another 90 acres in conservation easements. They restored 1,516 wetland acres and enhanced 2,437 acres of grasslands. The restored wetlands will help to filter contaminants from runoff waters, improving the watershed's water quality.

Partners making all of this possible include Wisconsin Department of Natural Resources, Ducks Unlimited, Inc., Pheasants Forever, The Nature Conservancy, Wisconsin Electric Power Company, U.S. Fish and Wildlife Service, and Wisconsin Department of Agriculture, Trade, and Consumer Protection.

For more information, contact Tim Grunewald, Wisconsin Department of Natural Resources, 101 S. Webster, Madison, Wisconsin 53707, or call (608) 264-6137; or fax (608) 267-3579, or e-mail grunet@dnr.state.wi.us.

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wetland. By restoring and enhancing that land, this project essentially expanded the Mosquito Creek and Grand River Wildlife Areas' capacity to provide a place for wetland-dependant wildlife by over 1,000 acres. Public benefits of such efforts include improved water quality, increased flood protection, and additional opportunities to experience higher-quality recreation and wildlife-viewing.

For more information, call David Risley, Ohio Department of Natural Resources at (614) 265-6330, or e-mail dave.risley@dnr.state.oh.us.

Partners of the Mosquito Creek/Grand River Coastal Wetlands Restoration Project

Partners of the Mosquito Creek/Grand River Coastal Wetlands Restoration Project contributed $180,000 to achieve project goals. A $170,000 North American Wetlands Conservation Act grant supported their work.

- Ohio Division of Wildlife
- Ducks Unlimited, Inc.
- Pheasants Forever
- Waterfowl USA
- The Isaac Walton League
- Safari Club

Wetlands Project Covering Three States Completed

by Curtis R. Hopkins, Ducks Unlimited, Inc.

The Wetlands Enhancement, Restoration and Reforestation on Private Lands, Lower Mississippi Valley II Project, covered an area almost as big as its name: 32 counties in Arkansas, 16 counties in Mississippi, and 18 parishes in Louisiana—an area critical to migrating and wintering waterfowl.

The project's purpose was to help compensate for the loss of natural wetlands in the Lower Mississippi Valley by enhancing and restoring wetland habitat on private lands. Project partners enlisted the help of landowners in developing and managing wetland habitats. Willing landowners were provided technical and financial assistance to establish seasonally flooded habitat on moist soil sites, agricultural fields, and forested wetlands. Partners also offered landowners the opportunity to reforest a number of frequently flooded cropland sites. These restoration efforts did not require compensation for land values.

Wetland Development Agreements, with a duration of 10 years and longer, were signed by 254 landowners, who installed 982 water-control structures (expected to last 25 years or more) in 657 wetland units. A total of 11,392 acres of habitat have been restored and 28,177 acres enhanced.

Partners' accomplishments will provide wintering and migration habitat for mallards, black ducks, pintails, and other waterfowl, and for shorebirds and wading birds. Reforestation will provide critical habitat for the Federally threatened black bear and breeding habitat for declining neotropical songbird populations. In addition to the wildlife habitat values accrued because of this project, there are also societal benefits. The project will positively affect water quality, flood abatement, and soil conservation—issues important to people living in the Lower Mississippi Valley.

For more information, contact Curtis R. Hopkins, Ducks Unlimited, Inc., Southern Regional Office, 193 Business Park Drive, Suite E, Ridgeland, Mississippi 39157, or call (601) 956-1936, or fax (601) 956-7814, or e-mail chopkins@ducks.org.

Wetlands Enhancement, Restoration, and Reforestation on Private Lands Lower Mississippi Valley II Project Partners

Project partners received a $686,342 North American Wetlands Conservation Act grant, which they matched with $2,193,357.

- Ducks Unlimited, Inc.
- Arkansas Game and Fish Commission
- Louisiana Department of Wildlife and Fisheries
- Mississippi Department of Wildlife, Fisheries and Parks
- U.S. Fish and Wildlife Service - Region 4
- Natural Resources Conservation Service - Arkansas and Louisiana
- Private Landowners
- Enron
- Texas Eastern
- Sonat
- ANR Pipeline Company
- Williams Company-Transco

Don Anderson, U.S. Fish and Wildlife Service

Reforestation on private lands in the Lower Mississippi Valley will provide critical habitat for the black bear, listed as threatened under the Endangered Species Act.

Plan Partners Execute Largest Conservation Transaction in U.S. History

by Joseph F. McCauley, Atlantic Coast Joint Venture

During the summer of 1999, a coalition of partners in the Northeast completed the largest public-private conservation transaction in U.S. history. Nearly 300,000 acres in New Hampshire, New York, and Vermont owned by the Champion International Corporation were sold and placed in conservation status through negotiations brokered by The Conservation Fund. Over $70 million in public and private funds were raised in just nine months, from December 1998 to September 1999, to complete the transactions.

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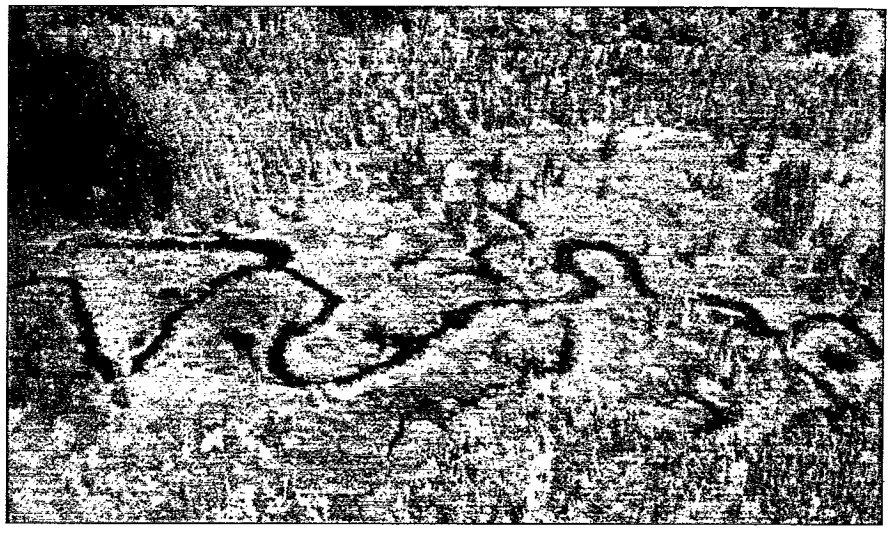


Shrub swamp along the Nulhegan River in Vermont is only one of the areas protected in the largest conservation transaction in U.S. history.

In New York, 29,000 acres were purchased for addition to the Adirondack Forest Preserve on July 1, 1999. An additional 110,000 acres was placed under conservation easement for use as a working forest and for public access. Acquisition of these lands will protect river corridors, wetlands, and boreal forests, and will provide recreational opportunities for canoeists, hunters, campers, and hikers.

On July 16, 1999, The Conservation Fund purchased 18,600 acres of forested, high elevation land in New Hampshire. These lands abut public conservation areas near the Connecticut River and will be used, in part, to demonstrate the compatibility of conservation with long-term, sustainable timber production.

In Vermont, 133,000 acres were secured for conservation and public access in transactions that occurred between July 23 and September 15, 1999. The U.S. Fish and Wildlife Service purchased 26,000 acres for addition to the Silvio O. Conte National Fish and Wildlife Refuge. This area contains the Nulhegan Basin, a high-priority focus area identified for protection by the Refuge. The Vermont Agency for Natural Resources will add 22,000 acres to their State Wildlife Management Area system through a $4.5 million donation from the Richard King Mellon Foundation and a $1 million grant from the North American Wetlands Conservation Act (Act). An additional 84,000 acres is protected by conservation easement and will be available for public recreation.

An array of partners joined forces to complete the Vermont portion of the project, which was supported by an Act grant. In addition to those mentioned above, the Vermont Land Trust, the Freeman Foundation, and Vermont's Housing and Conservation Board, pooled $7,210,000 to match the $1,000,000 grant, which was approved by the Migratory Bird Conservation Commission on September 15, 1999.

These lands contain important breeding habitat for black ducks, ring-necked ducks, wood ducks, hooded mergansers, and common loons. Boreal forest species include spruce grouse (Vermont's only viable population), Wilson's warbler, olive-sided flycatcher, black-backed woodpecker, three-toed woodpecker, and gray jay. The Nulhegan Basin alone contains seven different types of rare or exemplary natural communities including black spruce swamp, lowland bog, remote pond, and spruce-fir-tamarack swamp.

Completing a project of this magnitude, in such a short time, was nothing short of miraculous. It required the commitment and perseverance of a great number of dedicated individuals, ranging from natural resource agency and conservation organization staff members to state governors. Each of those who worked on this project has earned a place in history. Today's generation, and those to come, owe them a debt of gratitude.

For more information, contact Joseph F. McCauley, Atlantic Coast Joint Venture Coordinator, U.S. Fish and Wildlife Service, 300 Westgate Center Drive, Hadley, Massachusetts 01035-9589, or call (413) 253-8269, or fax (413) 253-8468, or e-mail joseph_mccauley@fws.gov.

Wetlands Provide an Oasis for Wildlife in West-central Missouri

by Arleasha L. Mays, All Outdoors
Tom Hutton, Missouri Department of Conservation

Like oases in the desert, Missouri wetlands give respite to birds on their migration routes across the continent via the Central Flyway. Over the years, this critical habitat type has become almost as rare as an oasis, with only 10 percent of Missouri's historic wetlands remaining today. However, the Missouri Department of Conservation aims to change all that through its various wetland restoration programs.

The Perry Memorial Conservation Area Wetlands Restoration Project received a $90,000 grant in 1995 under the North American Wetlands Conservation Act (Act) to create 737 acres of wetland habitat along Missouri's Blackwater River. Before this project began, the Conservation Area was suitable for wetland-dependent birds only during brief periods of flooding. Now, the Missouri Department of Conservation is able to maintain wetlands there year-round thanks to the water-control techniques they and their partners developed as part of this project.

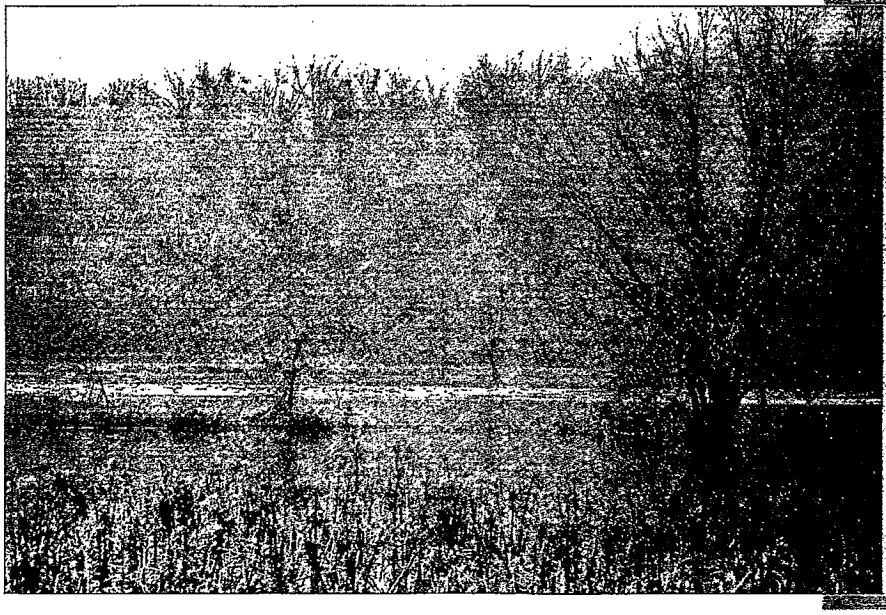
Partners established six wetland pools equipped to retain the region's frequent flood waters. The flow of water can be held or released according to habitat and wildlife needs. This type of wetland management takes advantage of floods from the Blackwater River to produce 400 acres of seasonally flooded forested wetlands, 252 acres of moist-soil wetlands, and 85 acres of continuously flooded emergent wetlands.

In addition to water-control measures, forest restoration efforts were conducted on land adjacent to the managed wetland sites. Four hundred acres of existing bottomland hardwoods were enhanced by thinning the canopy to stimulate growth and seed production of hard-mast tree species. Also, 120 acres of abandoned agricultural fields were reforested with bottomland hardwood species, primarily pecan and a variety of oaks.

More than 300 species of wildlife are benefitting from this project, including 23 species of waterfowl and 33 species of non-game migratory birds. Also benefitting are 2 Federally listed threatened or endangered species and 4 candidate species, 4 State endangered and 11 State rare species, and 7 species of concern. The Conservation Area's wetlands also provide benefits to the public in the way of hunting, fishing, birdwatching, nature viewing, and recreation.

For more information, contact Tom Hutton, Agriculture Management Supervisor, Missouri Department of Conservation, 2901 W. Truman Blvd., P.O. Box 180, Jefferson City, Missouri, 65102-0180, or call (573) 751-4115, or fax (573) 526-4663, or e-mail huttot@mail.conservation.state.mo.us.

"Most of the birds tracked during fall migration surveys are seen on state or federal wildlife management areas. If these areas didn't exist, there would be no place for the birds to go." Dave Erickson, Missouri Department of Conservation



Cliff White, Missouri Department of Conservation

Perry Memorial Conservation Area Wetlands Restoration Project Partners

Perry Memorial Conservation Area Wetlands Restoration Project Partners contributed $222,000 to match a North American Wetlands Conservation Act grant of $90,000.

Missouri Department of Conservation

Ducks Unlimited, Inc.

National Wild Turkey Federation

Wildlife Forever

McDonnell Douglas Foundation

Prior to the Perry Memorial Conservation Area Wetlands Restoration Project, the Conservation Area was suitable for wetland-dependent birds only during brief periods of flooding. Now, wetlands are maintained year-round.

The Chesapeake Challenge

by Perry Rech, Ducks Unlimited, Inc.

Perry Rech

Riparian buffers effectively isolate cattle from streamside vegetation and permit waterfowl nesting habitat to rebound.

Encompassing a watershed of 64,000 square miles, Chesapeake Bay is among the largest and most productive wetland ecosystems in the world. In total, the bay's rich diversity of wetland and upland habitats support upwards of 2,700 species of plants and animals, including the majority of the Atlantic Flyway population of Canada geese, as well as multitudes of other waterfowl species, shorebirds, wading birds, raptors, and neotropical migrants.

During recent decades, the health of Chesapeake Bay has suffered following the conversion of vast areas of wetlands and forests along the bay's extensive network of tributaries. Water pollution, primarily sediment-laden runoff, has killed vast beds of submerged, aquatic vegetation, such as eelgrass and wild celery, which are critical to waterfowl and fisheries.

In 1997, Ducks Unlimited, Inc., (DU) and the Chesapeake Bay Foundation (Foundation) formed a partnership to restore waterbird habitat and improve water quality throughout the Chesapeake watershed. Given the scope of the region's environmental challenges, DU and the Foundation have enlisted the support of numerous government agencies and private cooperators to restore habitat in the watershed.

For example, more than 15 partners, including the Natural Resources Conservation Service, Pennsylvania Game Commission, Soil and Water Conservation Districts, Farm Service Agency, Trout Unlimited, Ressler Mill Foundation, and Orvis Company, are working with DU and the Foundation, to restore and enhance wetlands and riparian habitat along Pequea and Mill Creeks in Lancaster County, Pennsylvania. With the support of a North American Wetlands Conservation Act grant, partners helped 90 farmers establish fenced buffers, constructed cattle crossings, and restored small wetlands along 50 miles of these Chesapeake Bay tributaries.

Fencing along streams provides a myriad of benefits. For example, herd health is enhanced by reducing contact with water-borne bacteria, and the risk of disease transmission between farms is curtailed as cattle access to a shared water resource is reduced. The lessened risk of foot and leg injuries from livestock going in and out of streams is another plus.

Fencing also prevents livestock from trampling streamside vegetation, helping to reduce erosion and siltation, thus improving water quality in the watershed. The resulting increased vegetation along streams provides food and habitat for wildlife and creates travel corridors between islands of cover. The protected vegetation also offers increased food supplies for fish and affords shade, cooling slow moving water, which benefits most native fish species.

During recent decades, the health of Chesapeake Bay has suffered following the conversion of vast areas of wetlands and forests along the bay's extensive network of tributaries.

Partners involved in the conservation of the Chesapeake Bay know they have a tremendous amount of work in front of them. But their success with each project provides just the inspiration needed to fuel the next project, and the next.

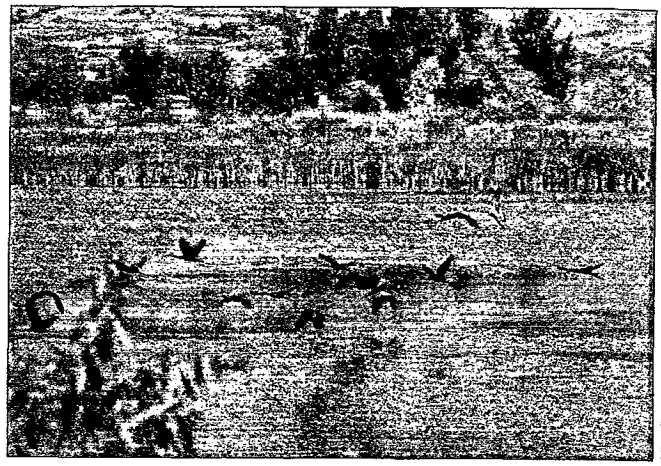
For more information, call Perry Rech, Ducks Unlimited, Inc., Great Lakes/Atlantic Regional Office, at (734) 623-2000, or e-mail prech@ducks.org.

Partners in Utah Busy as Bees

by Mike Pottage, Ducks Unlimited, Inc.

Intermountain West Joint Venture partners are swarming around the Beehive State's Great Salt Lake trying to complete a sweet little wetlands conservation project. Well, maybe not so little. . .the goal is to restore and enhance 15,629 acres of wetlands and 893 acres of uplands around the Lake with the help of a $987,099 North American Wetlands Conservation Act grant. Partners expect the project to cost $4.18 million.

The Great Salt Lake's 400,000 acres of wetlands are among the most important waterfowl and shorebird habitat in the Joint Venture and account for 75 percent of Utah's wetlands. Half this acreage is unprotected and faces pressures from an expanding population in Davis County and along the face of Salt Lake City's Wasatch Mountains.



Mike Pottage

Utah's Farmington Bay Wildlife Management Area preserves wetlands that would otherwise be facing pressures from Salt Lake City expansion.

Private duck clubs hold title to about 50,000 acres of habitat, and approximately 150,000 acres are protected by State and Federal agencies. Estimates indicate that the Great Salt Lake supports 85,000 pairs of breeding ducks and more than 3 million migrating waterfowl. Surveys indicate 750,000 ducks and 3,000 geese are produced in these wetlands each year, including 500,000 mallards and nearly 1 million pintails. Redheads, canvasbacks, Canada geese, tundra and trumpeter swans, shovelers, and gadwalls use the wetlands, too. Snowy plovers, short-eared owls, long-billed curlews, and Franklin's gulls are also regulars on the Lake's habitats.

The Great Salt Lake's 400,000 acres of wetlands. . . account for 75 percent of Utah's wetlands.

Partners recently held a groundbreaking ceremony at the Farmington Bay Wildlife Management Area to recognize the work beginning there and to report on progress made since the grant was awarded 11 months before. As earth was moved, it marked the first step in the installation of a new water system to improve management of 6,000 acres of wetlands north of Salt Lake City.

Since receiving the grant,

- approximately 320 acres have been acquired or options have been obtained,
- negotiations have begun for the donation of 64 acres at Farmington Bay by Davis County to the Utah Division of Wildlife Resources and for the donation of an easement to secure 7 acres of palustrine emergent wetlands in Kaysville,
- restoration work has begun on 1,400 wetland acres at the Ambassador Club (50 acres were restored prior to receiving the grant),
- work has continued on the New State, Incorporated's 46-acre restoration project (43 acres were restored prior to receiving the grant),
- negotiations for the acquisition of the 76-acre Layton Preserve/Sugar Drain tract have begun (restoration design and construction will begin when the acquisition is completed),
- 7,363 wetland acres at Bear River Migratory Bird Refuge (Refuge) have been restored, and
- engineers have begun the design of brood ponds to improve waterfowl production within the Refuge's Grasslands Unit.

The Great Salt Lake Wetlands Project Partnership

Ducks Unlimited, Inc.
Ambassador Club
Davis County
Friends of the Bear River Refuge
New State, Incorporated
R. Harold Burton Foundation
The Nature Conservancy
U.S. Fish and Wildlife Service
Utah Division of Wildlife Resources
Utah Reclamation and Mitigation Conservation Commission
Utah Wetlands Foundation

Wildlife is not the only beneficiary of this project. The local economy also will reap rewards from partners' efforts. In 1991, the International Association of Fish and Wildlife Agencies estimated combined retail sales related to the presence of these habitats to be in excess of $64 million. How much more in 1999?!

For more information, contact Mike Pottage, Ducks Unlimited, Inc., Western Regional Office, 3074 Gold Canal Drive, Rancho Cordova, California 95670-6116, or call (916) 852-2000, or e-mail mpottage@ducks.org.

The Somass River—A West Coast Priority

by Holly Jackson, Ducks Unlimited Canada

Upper Pacific Coast habitats are ranked ninth in priority under Ducks Unlimited Canada's (DUC) Continental Conservation Plan. These habitats are also the main wintering grounds for millions of waterfowl.

With the discovery of rare plants such as Alaskan paintbrush, wild flag, and yellow rattle, the Somass River estuary has also been nominated to become an ecological reserve.

Over 4,000 waterfowl winter in the Somass River estuary alone, coming from nesting grounds across the western Arctic, Alaska, Yukon, and British Columbia (B.C.). Numerous herons and raptors, including the rare gyrfalcons, are known to use this estuary. Associated rivers support all five species of ocean-going salmon as well as other freshwater species. In addition, Canada's Department of Fisheries and Oceans (Department) rates the Somass River estuary as the number one priority for river enhancement work for the entire B.C. coast.

The Somass River Estuary drains into the Alberni Inlet 54 kilometers inland from the west coast of Vancouver Island. The Pacific Estuary Conservation Program (PECP), the land securement and enhancement arm for the Pacific Coast Joint Venture, has signed a conservation agreement on 96 hectares of the estuary. Future plans include purchasing this area, which encompasses the majority of outer marshes of the estuary, and one adjacent parcel of sea-level farmland, containing meandering tidal channels.

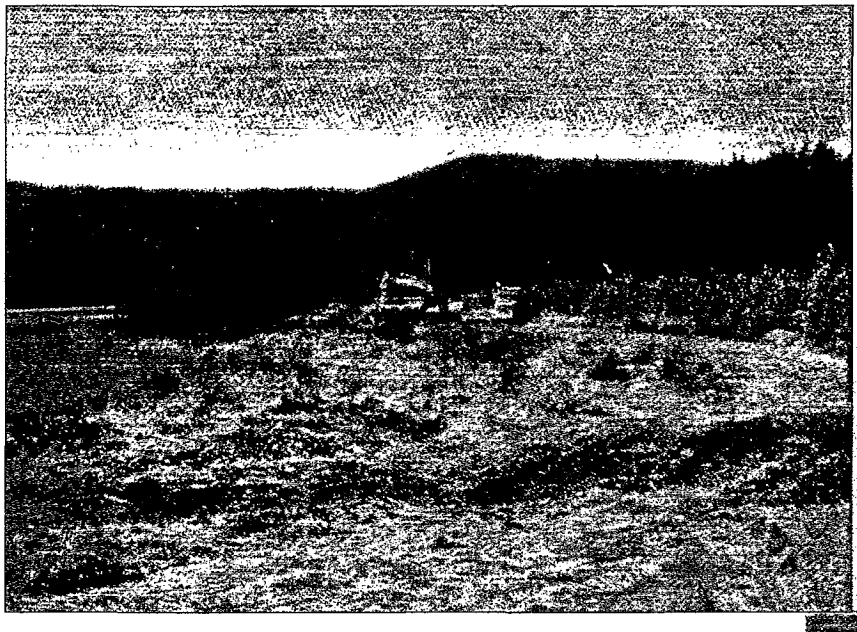
MacMillan Bloedel Ltd. held the private lands in the estuary until the spring of 1998, when they were sold to Pacifica Paper along with MacMillan Bloedel's papermaking interests at Port Alberni. Crown land and the waters of the inlet are held and administered by the Port Alberni Harbour Commission. Upstream of the estuary, most natural lowland areas are held within the Klehkoot, Ahaswinis, and Tsahaheh Indian Reserves.

This summer, the Department, DUC, and the B.C. Habitat Conservation Trust Fund financed a 500-metre-long berm along the property line separating Pacifica's proposed poplar tree plantation and the area under conservation agreement. The berm allows marine water to influence the intertidal habitat.

Local groups, logging interests, and provincial and federal agencies have formally recognized the value of the Somass River estuary. In 1973, the 80-acre J.V. Clyne Bird Sanctuary was established by MacMillan Bloedel to provide habitat for over 300 trumpeter swans. With the discovery of rare plants such as Alaskan paintbrush, wild flag, and yellow rattle, the Somass River estuary has also been nominated to become an ecological reserve.

This conservation agreement protects most of the undeveloped estuarine habitats at the head of the Alberni Inlet. In addition, it provides an opportunity to work in partnership with forest interests, local conservation societies, Environment Canada, the Department, and the Federal Harbours Board to help establish formal tenure and manage most of the adjacent intertidal lands. This unique estuarine habitat area and its importance to both fish and wildlife have helped the PECP and the Pacific Salmon Foundation establish and solidify future partnerships.

For more information, contact Les Bogdan, Ducks Unlimited Canada, Unit 1-3033 King George Highway, Surrey, British Columbia, V4P 1B8, or call (604) 531-5933, or e-mail l_bogdan@ducks.ca.



John Renner, Ducks Unlimited Canada

This past summer, a 500-meter-long berm was constructed along the property line separating Pacifica's proposed poplar tree plantation and the area under conservation agreement.

Partners in the Pacific Estuary Conservation Program

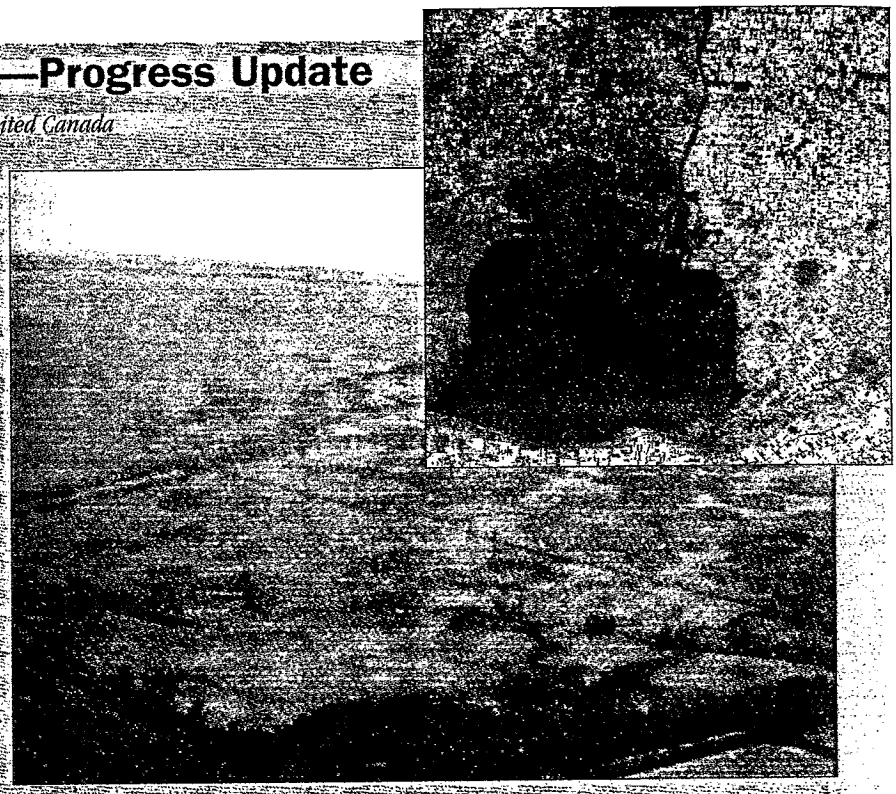
Canadian Wildlife Service
Department of Fisheries and Oceans
Ministry of Environment, Lands and Parks
Habitat Conservation Trust Fund
Ducks Unlimited Canada
Nature Trust of British Columbia

Lake St. Clair Project—Progress Update

by Kathy Maher and Owen Steele, Ducks Unlimited Canada

In 1994, the Ontario Eastern Habitat Joint Venture Implementation Plan's top priority for conservation, restoration, and enhancement in Ontario was the wetlands on the eastern shoreline of Lake St. Clair, along with Long Point wetlands. The Lake St. Clair wetlands are essential to migrating waterfowl, yet they continue to be threatened by agricultural and recreational development.

Several factors, including drainage of most of the area's historic wetlands, hardening of the shoreline, and regulation of lake levels for shipping, have led to wetland loss or degradation of the remaining habitat. This has resulted in very productive farmland, but has dramatically reduced wildlife habitat. The majority of remnant habitat exists on private hunting-club lands or publicly owned national wildlife areas.



The Lake St. Clair wetlands are essential to migrating waterfowl, yet they continue to be threatened by agricultural and recreational development, as seen in the above aerial photograph.

Ducks Unlimited Canada (DUC) has concluded that reclamation of a small amount of existing agricultural land back to marshland is the most feasible option for restoration. A conceptual plan was presented by DUC to the Ontario Eastern Habitat Joint Venture Steering Committee in the spring of 1997. The Committee supported the plan.

The Lake St. Clair wetlands are essential to migrating waterfowl, yet they continue to be threatened by agricultural and recreational development.

Since then, a comprehensive and dynamic plan has emerged. The multi-year plan involves an initial consultation process and research phase, which began in 1998. A concept development and site-selection phase was initiated during the first half of 1999, a design phase which is ongoing, and two future phases including the acquisition, detailed design, and construction phase, and finally, the ongoing management and monitoring phase.

Currently, the public consultation phase is underway with regular bulletins distributed to key local stakeholders and the general public. Results from the socio-economic research study being completed represent a significant part of the public consultation process and will help determine the proposal's fate. A local advisory committee is also closely involved with project planning. Once the project design is accepted, and acquisition and construction complete, a local management committee will participate in the development of a management plan.

The Joint Venture's implementation plan identifies several objectives: restore and secure 1,000 acres of wetlands and associated uplands to increase and enhance habitat for staging waterfowl and other wetland-dependent species, increase waterfowl production in the Mississippi Flyway, and incorporate recreational, agricultural, community, economic, and tourism interests into planning.

It is projected that total costs for the project could exceed $7 million over 30 years. Land acquisition alone is valued at $6 million and construction and maintenance costs will be approximately $600,000. Nearly $1 million in savings could be realized through a combination of reduced taxes from land reclassification and reduced land-acquisition costs through lease-back options.

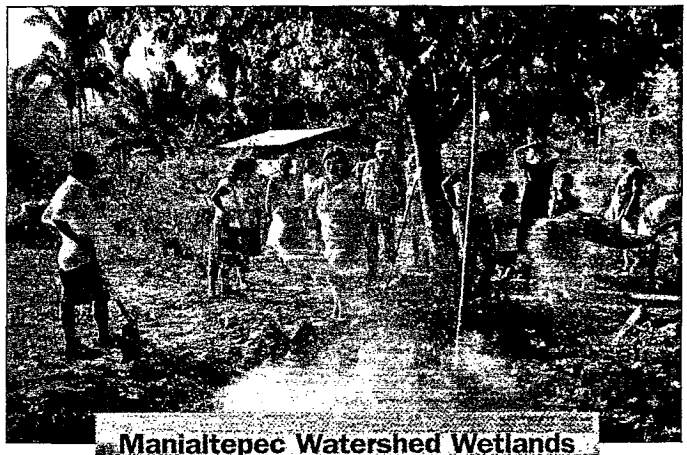
Based on local acceptance and available funding, it is anticipated that land acquisition of this large-scale restoration project could begin as early as the spring of 2000 with construction to follow.

For more information, call Owen Steele, Ducks Unlimited Canada at (705) 721-4444, or e-mail o_steele@ducks.ca.

Conserving the Manialtepec Watershed for People and Wildlife

by Juan José Consejo, Oaxaca Institute for Nature and Society

The wetlands of the Manialtepec River, located along the western coast of Oaxaca, have special biological and social significance that has been increasingly recognized by both government and non-governmental conservation agencies throughout Mexico. This watershed provides a refuge for many bird species migrating from the United States and Canada. It is also a sanctuary for the young of many marine species important to local fisheries, such as shrimp, mussels, and several fish species.



Oaxaca Institute for Nature and Society

Land-use planning in the Manialtepec watershed must consider the needs of the people living there.

Manialtepec Watershed Wetlands Conservation Project Partners

Partners in the Manialtepec Watershed Wetlands Conservation Project contributed $55,750 to match the $39,140 grant received under the North American Wetlands Conservation Act.

- Oaxaca Institute for Nature and Society
- Mexican Fund for the Conservation of Nature
- Foundation "Vamos"
- Oaxaca Environmental Defense Commission
- Conservation International
- World Wildlife Fund
- SEMARNAP

Despite its significance, the health of this ecosystem has been deteriorating. Intense harvesting of mangrove forests, major land-use changes, water contamination by agrochemicals, uncontrolled destruction of plants and wildlife, increased human settlements and pollution, and unregulated tourist activities all threaten the watershed. The ecological importance of the region and concern for its deterioration are what prompted the members of the Oaxaca Institute for Nature and Society to work with local organizations and the government years ago to establish what is now known as The Program for Environmental Regulation of Manialtepec.

Overall, the program intends to lay the informational, planning, social, and institutional foundations required for the long-term conservation of the watershed. However, specific actions were needed to protect the more than 2,000 acres of these federally and communally owned wetlands.

In 1998, the Institute received a $39,140 grant under the North American Wetlands Conservation Act to conduct the Conservation of the Manialtepec Watershed Wetlands Project. The need for this project became increasingly urgent in the wake of Hurricanes Paulina and Rick, which recently caused an enormous amount of damage to the natural environment of the watershed and its communities.

The need for a watershed management plan and cohesion among Manialtepec's communities has become all the more urgent as they rebuild in the aftermath of Hurricanes Paulina and Rick...

Partners have been making an incredible amount of progress towards accomplishing the conservation and management objectives of the project, which is scheduled to finish next year.

Land-use and vegetation maps of the watershed have been completed and two plant nurseries (one specifically for mangrove reforestation) have been installed with strong community participation. A Committee of the Lagoon has been formed that coordinates conservation actions among local communities, State government, non-governmental organizations, and research centers.

Partners have also provided technical assistance and training to local communities regarding waste management, sustainable harvesting and production of coffee, ecotourism, fuel-saving cooking devices, and more. Lastly, the newsletter *El Macquil* has been published monthly to circulate information about the project's watershed conservation efforts and community issues.

The main purpose of the project has been to integrate three issues that are usually treated separately: finding new theoretical approaches towards conservation; employing sound, alternative technologies for resource conservation, especially water and soils; and meshing traditional and modern knowledge and techniques to carry out effective land-use planning. The key element in this approach is collaboration among all interested parties.

Partners of the Manialtepec project also are reviewing and challenging current means of handling the culture-ecology interface to find better ways to achieve real social equality and harmony with nature.

For more information, contact Juan José Consejo, Oaxaca Institute for Nature and Society (INSO), M. Bravo 210 altos, Centro, C.P. 68000, Oaxaca, Mexico, or call/fax (529) 514-6490, or e-mail insopcion@infosel.net.mx.

DU Pursues Opportunities in the Lower Mississippi Valley Landscape

by Curtis R. Hopkins and Sarah Pearson Mott, Ducks Unlimited, Inc.

Once a 24,000,000-acre forested wetland, the Lower Mississippi Valley (LMV) today consists primarily of agricultural lands and scattered blocks and corridors of bottomland hardwood forest. Economics and current land use prevent total wetland restoration of the LMV, but opportunities exist for some significant wetland conservation in the region.

The Lower Mississippi Valley Joint Venture has adopted a landscape approach to habitat management in the LMV, setting specific restoration, enhancement, and protection objectives for public and private lands. To accomplish those objectives, alliances have been formed that integrate a variety of compatible practices and programs to address the wetland conservation needs of the LMV landscape and the interests of all involved. These alliances are made up of numerous federal, state, and private partners, including Ducks Unlimited, Inc. (DU).

Ducks Unlimited, Inc.

To date, partner programs in six Lower Mississippi Valley states and southeast Texas have helped landowners develop 220,126 acres of dependable winter water on private lands.

In 1991, DU began recruiting landowners to provide reliable water for migrating and wintering waterfowl, primarily on impounded agricultural lands. To date, partner programs in six LMV states and southeast Texas have helped landowners develop 220,126 acres of dependable winter water on private lands. Landowners guarantee projects will be maintained and managed for 10 to 15 years and 91 percent of surveyed landowners plan to continue managing their seasonal wetlands after their management agreements expire.

...91 percent of surveyed landowners plan to continue managing their seasonal wetlands after their management agreements expire.

Since 1996, the conservation easement program administered by DU's Southern Regional Office has protected more than 30,000 acres of privately owned forested wetlands in the LMV, ensuring those lands will continue to provide conservation benefits in perpetuity. Landowners retain ownership, as well as all management and maintenance responsibilities.

To help meet the critical need for restoration of bottomland hardwood forests and hydrology, DU recently joined with landowners and the Natural Resources Conservation Service in Arkansas, Louisiana, and Mississippi to provide hydrology restoration and reforestation for Wetland Reserve Program lands. These mutually beneficial partnerships have reforested 72,000 acres of bottomland hardwoods, restored hydrology on 12,000 acres, and demonstrated that existing "non-wildlife" programs can be utilized to benefit waterfowl, neotropical migrants, and other bottomland forest species.

On public lands, DU works with partners to implement projects that relate spatially to private conservation efforts. For example, a 9,560-acre wetland restoration project done in cooperation with the Louisiana Department of Wildlife and Fisheries on the Boeuf River Wildlife Management Area resulted in reforestation of 6,205 acres and restoration of hydrology on 3,355 acres. The project's wetland conservation value was increased by the presence of nearby private lands where DU has worked with partners to reforest Wetland Reserve sites, obtain conservation easements, and develop seasonal wetlands on agricultural lands.

Specific landscape habitat objectives have provided the direction DU and its partners needed to identify potential habitat delivery programs and partners. The willingness to shape efforts to meet the needs of those partners has opened new opportunities for waterfowl conservation management on a large scale. The results have proved mutually beneficial, securing new resources, ideas, and energy for expanded waterfowl habitat conservation in the Lower Mississippi Valley.

For more information, contact Curtis R. Hopkins, Ducks Unlimited, Inc., Southern Regional Office, 193 Business Park Drive, Suite E, Ridgeland, Mississippi 39157, or call (601) 956-1936, or fax (601) 956-7814, or e-mail chopkins@ducks.org.

Ideas Flow at Riparian Workshops

by Tracy Harrison, Saskatchewan Wetland Conservation Corporation

What does a healthy riparian area look like? Approximately 85 people from across western Canada found the answer to that question through a series of Streambank Stewardship Workshops organized by the Saskatchewan Wetland Conservation Corporation. Led by Dr. Paul Hansen, director of Montana's Riparian and Wetland Research Program, the hands-on training in riparian assessment included visits to demonstration sites managed by landowners in the Corporation's Streambank Stewardship Program.

Through tours of demonstration projects, landowners learn the benefits of healthy riparian and upland areas.

Saskatchewan Wetland Conservation Corporation

Dr. Paul Hansen, director of the University of Montana's Riparian and Wetland Research Program.

Among those participating, representatives from partner agencies included extension agrologists, fisheries biologists, soil conservationists, livestock specialists, and water-quality specialists who work with farmers, ranchers, and other property owners on a daily basis.

Dr. Hansen developed the assessment system used by Canada and U.S. technicians and landowners to establish management plans to benefit water quality, fish and wildlife habitat, livestock forage, and erosion control. "We train landowners to use this assessment form; the non-scientific community can use it—so can school kids, teachers, bureaucrats, land managers, and environmental writers," he said.

Extension staff of partner agencies learn how to assess the health of riparian and wetland areas.

To complement the assessment, Dr. Hansen also is writing a management guide for riparian and wetland areas of the Canadian prairies, which he modeled after Montana's guide. It will help users predict management results by identifying potential plant communities.

Saskatchewan Wetland Conservation Corporation

A film crew shoots footage for a riparian video being produced by the Saskatchewan Wetland Conservation Corporation.

Dr. Hansen emphasizes the value of public education. He claims that society as a whole is responsible for the present condition of our riparian areas. "We didn't get these sites looking the way they are today overnight . . . where do we put our highways, our farms, our cities? People want to do what is right. They just want to know what right is," says Hansen.

For more information, call Tracy Harrison, Saskatchewan Wetland Conservation Corporation at (306) 787-1459, or e-mail tneumann@wetland.sk.ca.

Incorporating the Visions of the 1998 Plan Update in the Alberta Aspen Parkland

by Dr. Jonathan Thompson, Ducks Unlimited Canada

Ducks Unlimited Canada's (DUC) Alberta Aspen Parkland Field Office is dedicated to delivering the three visions of the *1998 Update to the North American Waterfowl Management Plan, Expanding the Vision*.

To strengthen the Plan's biological foundation, staff have facilitated evaluation of Prairie Habitat Joint Venture conservation programs by working with the Institute of Wetland and Waterfowl Research on several study sites in parkland Alberta. The primary reason many of these study sites exist is because of staff commitment to deliver conservation programs that meet Plan goals.

Roger Bryan

Typical native Aspen Parkland habitat, wherein uplands retain nesting waterfowl cover, while not inhibiting agriculture and livestock production.

Roger Bryan

The Prairie Agriculture Research Initiative Farm, east of Edmonton, exists because of the commitment of staff and partners to conserve habitat in parkland Alberta.

Last summer, staff coordinated program evaluations in the Big Hay Lake, Red Willow, and Kinsella landscapes. They also developed evaluation initiatives, such as the Beaverhill Lake Biodiversity Study, cultivating new partnerships with the Canadian Wildlife Service and Beaverhill Bird Observatory. This study provided essential baseline information on bird use of 19 different habitats associated with Beaverhill Lake. The lake is one of the most important wetlands for migratory birds in western Canada, encompassing habitat types used by 30 species with special status in Alberta, including the endangered piping plover. Information provided by this research will be critical for landscape-level conservation in the Parkland.

To enhance landscape conservation in central Alberta several new projects have also been undertaken. One project involves the conversion of annually cropped areas into timothy hay to provide increased perennial land cover, while also providing environmentally sustainable agricultural opportunities. This extension-based program is encouraging producers in important waterfowl production areas to consider timothy production as an alternative to cereal crops.

Preliminary data from 1999 suggest that timothy fields are attractive to mid- and late-season nesting waterfowl, such as blue-winged teal and gadwall. Waterfowl nest density was approximately one nest per 10 acres, with nest success rates often exceeding 20 percent. Passerine species assemblages were similar in timothy and mixed hay fields, but were more diverse in timothy fields than in spring-seeded croplands.

Faced with increasing acreage of canola in parkland landscapes, staff have also been assessing the potential of fall-seeded canola to provide additional cover for nesting waterfowl. Early results suggest that mid- and late-season nesting waterfowl will nest in fall-seeded canola during years when plants have matured sufficiently to provide adequate nesting cover in spring.

Staff have also increased their efforts to locate and secure remaining tracts of native parkland habitat and strengthened partnerships with organizations such as the Alberta Conservation Association, Alberta Environment, and The Nature Conservancy of Canada through joint acquisition agreements.

Finally, there are many examples of expanding partnerships between DUC and other organizations to promote conservation efforts in central Alberta. Perhaps one of the most innovative new partnerships is with the Parkland Conservation Farm's Agro-environmental Education Program. This program, which promotes increased environmental awareness and demonstrates sustainable agricultural practices, was a huge success this year with over 1,100 students and 150 adults participating.

The Parkland Conservation Farm, located near Vegreville, is a cooperative effort between Plan partners, including DUC, local municipalities, farmers, agri-businesses, Agriculture and Agri-food Canada, Alberta Agriculture, Food and Rural Development, and the Parkland Agricultural Research Initiative.

For more information, contact Dr. Jonathan Thompson, Ducks Unlimited Canada, #200, 10720 – 178 Street, Edmonton, AB T5S 1J3, or call (780) 489-2002, or fax (780) 489-1856, or e-mail j_thompson@ducks.ca.

Bureau of Reclamation Helps a Landscape in Recovery

by Michael Delvaux, U.S. Bureau of Reclamation

Timed to pace the retreating snow cover, the spectacle returns. And it does not matter if you have witnessed this annual ritual before, it is guaranteed that your senses will be overwhelmed. Before the spring migration season in Nebraska's Rainwater Basin is finished, over 15 million ducks and geese, 300,000 shorebirds, and endangered whooping cranes will utilize this wetland complex.

Nebraska'a Rainwater Basin wetland area is recognized as one of the world's premier spring migratory staging areas and as a habitat of international importance.

The Rainwater Basin is located south of the Platte River in central Nebraska in the middle of the Central Flyway's hourglass constriction point. It is considered to be one of the world's premier spring migratory staging areas and a habitat of international importance. Encompassing 4,200 square miles, Rainwater Basin once contained 4,000 wetland basins covering nearly 100,000 acres. Today, it exists only in remnant form with less than 400 wetland basins and 21,000 acres of wetlands remaining.

In 1991, the North American Waterfowl Management Plan Committee officially recognized the Rainwater Basin as the eighth Joint Venture under the Plan. In pursuit of the vision and goals of the Plan, the U.S. Bureau of Reclamation (Bureau), in association with a multitude of partners, is participating in several areas to support this critical habitat.

Restoration

The Rainwater Basin is under intensive agricultural production. Extensive alterations to the landscape have adversely affected wetland basins and their watersheds. Common alterations include filled wetlands, deep-water-concentration pits, dikes, and a wide range of wetland drainage systems. Currently, about 75 percent of the remaining wetlands are in public ownership, and while funds for property acquisition are usually available, funding for restoration is often limited. Using funding from its Wetland Development Program, the Bureau has partnered with federal, state, and local public-land-management agencies to accomplish wetland and associated upland restoration and enhancement. The objective of these projects is to restore the natural hydrology and shallow-water regime to the wetland basins and native plants to the associated uplands.

Planning

In addition to wetland restoration, a comprehensive Geographic Information System (GIS) is being developed using a special investigations planning study under the Bureau's planning program. A GIS database will enable managers to develop prescription-type management plans for wetland basins and their watersheds. It will also serve as an important tool in guiding the application of private-land programs and for defining future land-acquisition priorities.

Finally, the Bureau, the Natural Resources Conservation Service, Nebraska Game and Parks Commission, and the U.S. Fish and Wildlife Service recently entered into a 5-year agreement to assist in funding the Rainwater Basin Joint Venture coordinator position. The primary goals of the Joint Venture are to protect, restore, and create an additional 25,000 acres of wetlands and 25,000 acres of associated uplands. With strong partnerships already in place and the potential to develop others, the Rainwater Basin will continue to be a world-class spring migratory resource.

For more information, contact Michael Delvaux, U. S. Bureau of Reclamation, Box 1607, Grand Island, Nebraska 68802, or call (308) 389-4622, extension 207, or fax (308) 389-4780, or e-mail mdelvaux@gp.usbr.gov.

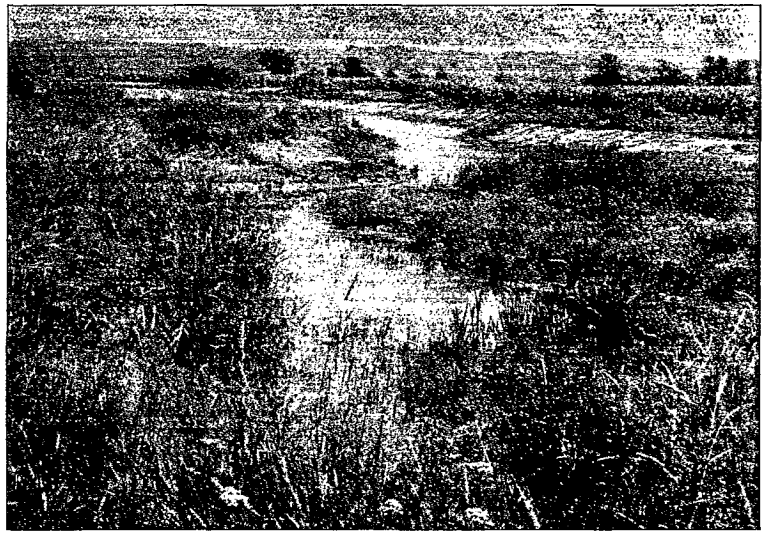
Wetland Stewardship in Nova Scotia—The Past, Present and Future

by Reg Newell, Nova Scotia Department of Natural Resources

The Nova Scotia Wetland Stewardship Program under the Eastern Habitat Joint Venture began in 1991. With 73 percent of the Province's land base privately owned, a stewardship program was considered essential for wetland conservation.

With 73 percent of the Province's land base privately owned, a stewardship program was considered essential for wetland conservation.

During the initial development of the Wetland Stewardship Program, the Joint Venture recognized that, with approximately one third of the private land in Nova Scotia owned by several forest corporations, corporate stewardship would be crucial. Working with forest companies provides an opportunity to safeguard wetland habitat and affords companies the opportunity to support conservation and wetland stewardship. To date, three major forest corporations, Bowater Mersey Paper Company Ltd., Stora Forest Industries Ltd., and Kimberly-Clark Nova Scotia, have signed memoranda of agreement with the Province to develop wetland conservation plans for their holdings. Other corporate landowners have also expressed an interest in establishing wetland stewardship agreements.



Kirk Schroeder, U.S. Fish and Wildlife Service

Reg Newell

Joint riparian fencing and small marsh projects in the Annapolis Valley, Nova Scotia are integral to protecting the Province's wetland habitat.

Although corporate stewardship continues to be an important component of the Wetland Stewardship Program, about half the land base and a large percentage of wetlands belong to private landowners. Accordingly, a Private Landowner Stewardship project was initiated to promote wetland conservation in agricultural areas. The Riparian Fencing Project encourages livestock producers to fence off wetlands and waterways leaving riparian or buffer zones of natural vegetation. Now, in its second year, the Province has signed agreements with over 30 producers to protect approximately 600 acres of riparian habitat.

Partnerships will continue to expand. With wetland conservation as the focus, the Wetland Stewardship Program promotes partnerships with municipal, town, and regional governments that control provincial land-use bylaws. In April 1999, the Wetland Stewardship Program took the first step towards municipal stewardship by organizing a workshop for planners and development officers on the functions, values, and integrated uses of wetlands.

Through the Wetlands Stewardship Program, the Joint Venture is developing a Coastal Stewardship Plan that centres on wetland conservation in the coastal landscape. Nova Scotia has 6,700 kilometres of coastline providing habitat to a wide variety of plants and animals. Estimates indicate that in the last 400 years, over 60 percent of the Province's salt marshes have disappeared. These salt marshes, as well as eel grass beds and mud flats, are critical to millions of migrating shorebirds and waterfowl. Without the support of private landowners, many of the Province's coastal wetlands will continue to decline.

Interwoven throughout all stewardship programs are two basic concepts—education and communication. Since 1991 the Wetlands Stewardship Program has developed fact sheets and pamphlets on wetlands and stewardship, produced articles, conducted seminars and poster sessions, and worked with a variety of groups to improve the understanding of wetland conservation in Nova Scotia.

The Wetland Stewardship Program continues to evolve. Through this program, new approaches to meet the biological, landscape, and partnership objectives of the 1998 update to the *North American Waterfowl Management Plan* are already becoming an integral part of wetland conservation in Nova Scotia.

For more information, contact Reg Newell, Stewardship Coordinator, Nova Scotia Department of Natural Resources, Wildlife Division, 136 Exhibition Street, Kentville, Nova Scotia B4N 4E5, or call (902) 678-6145, or e-mail newellrb@gov.ns.ca

Satellite Tracking of Surf and White-winged Scoters in Alaska

by Daniel H. Rosenberg and Michael J. Petrula, Alaska Department of Fish and Game

Scoters are among the least studied of North American waterfowl. Little is known about their migration routes or the affiliations between their breeding, molting, and wintering areas. But data that are available, indicate that scoter populations are declining throughout their range.

Without basic information on movement and distribution, it is difficult to effectively monitor populations, let alone determine the causes of decline. So, in 1998 and 1999, the Alaska Department of Fish and Game conducted a study using satellite technology to track the movements of 11 surf scoters and 7 white-winged scoters from their wintering area in Alaska's Prince William Sound (Sound).

Surf scoters, black scoters, and white-winged scoters all occur in the Sound primarily in winter and spring. These birds form large rafts in spring as they congregate in the nearshore to feed on newly deposited Pacific herring roe. In 1998, using decoys and floating mist nets, biologists captured 40 scoters over 4 days of poor weather conditions. In 1999, with good weather conditions, 200 scoters were captured over an 8-day period. All birds were banded and a few selected for transmitter implantation.

Alaska Department of Fish and Game biologist Dave Crowley (left) and Dan Mulcahy, U.S. Fish and Wildlife Service, capture a white-winged scoter in a floating mist net for banding and transmitter implantation.

After removal from the nets, birds were transported to a nearby ship, where a veterinarian anesthetized them and implanted a 36-gram transmitter in the female surf scoters and a 52-gram transmitter in the male surf scoters and in all the white-winged scoters. The transmitter sent a signal to a polar-orbiting satellite that relayed data to a ground receiver. Biologists received information on the bird's location (latitude and longitude) and internal temperature by e-mail.

In 1998, biologists tracked movements of one female and three male surf scoters. The males took similar routes, flying about 800 kilometers west to a molting area in southwestern Alaska. The female migrated 1,400 kilometers northeast to a nesting site in the Northwest Territories (NWT). The males departed the molting site for three different wintering areas separated by almost 1,110 kilometers. A transmitter on one male continued to send signals until July 1999. Rather than going west to a molting area as it did in 1998, this bird migrated to the vicinity of Inuvik in the NWT.

In 1999, seven surf scoters were tracked to nesting areas in Interior Alaska, the Yukon, and NWT. Males that migrated to nesting areas in the Yukon and NWT moved another 1,000 kilometers to molting areas in northwest Alaska. Another male moved to a molting site in southwestern Alaska.

White-winged scoters were added to the study in 1999. Four females migrated to nesting areas in the NWT, while two male white-winged scoters moved west from the Sound to molting areas in south-central and western Alaska. A fifth female died in Alaska's interior on her way north. Data are still being collected on surviving birds.

This marks the first time that seasonal movements, migration routes, and locations of molting, nesting, and wintering areas have been documented for the Sound's scoters. Obtaining this information would have been impossible without satellite telemetry. With this type of information, better management strategies can be developed to help conserve scoter populations.

The Scoter Research Partnership

Alaska Department of Fish and Game

Exxon Valdez Oil Spill Trustee Council

U.S. Fish and Wildlife Service

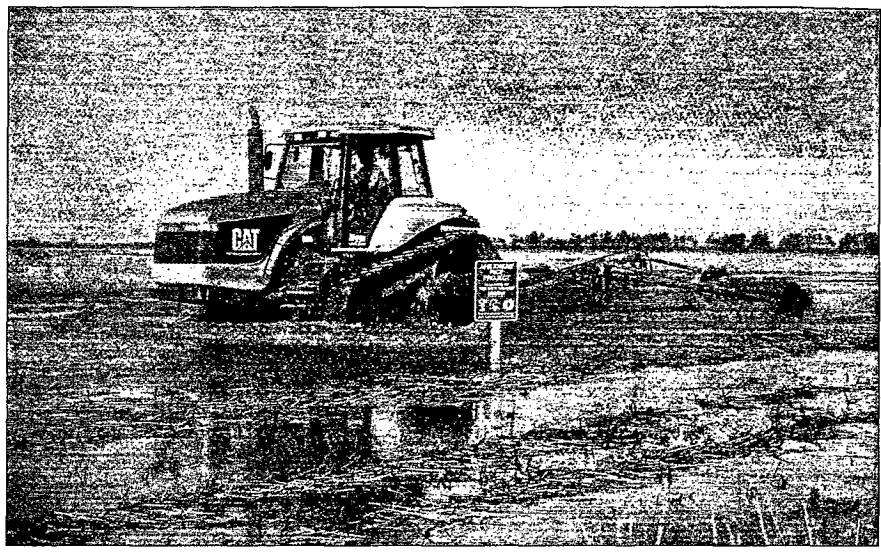
For more information, contact Daniel H. Rosenberg, Alaska Department of Fish and Game, 333 Raspberry Road, Anchorage, Alaska 99518, or call (907) 267-2453, or e-mail dan_rosenberg@fishgame.state.ak.us, or visit website http://www.state.ak.us/adfg/wildlife/waterfwl/scoter/surf.htm

Winter-Water Management Reduces Costs for Rice Farmers

by Scott W. Manley, Ducks Unlimited, Inc.
Richard M. Kaminski, Mississippi State University

Winter-flooded ricefields provide critical habitat for migrating and wintering waterbirds. Rice acreage and production are increasing in the Mississippi Alluvial Valley (MAV) despite static or declining trends in southwest Louisiana and the Texas Gulf Coast. While managing lands for wildlife is important, management practices that improve the rice grower's "bottom line" are more readily adopted.

To help clarify the link between waterbird and field management, we conducted a study during winter-spring 1995-96 and 1996-97. Our objective was to evaluate the potential of ricefield flooding in winter to reduce residual rice straw and weeds, thus benefitting spring-field preparation for rice or soybeans in the MAV.



Extension education programs such as Arkansas' RICE Project inform farmers as to the advantages of winter water management and promotes the rice industry's conservation efforts.

Turning Rice Straw into Soil

In the MAV, there are about 5 tons per acre of rice straw left after harvest. Because rice straw has high silica content and contains little nitrogen relative to carbon, it resists both physical breakdown and biological decay. The straw must be decomposed and amended to soils by spring to facilitate planting.

A combination of fall disking and flooding until March 1 reduced rice straw 68% by spring planting. Reduction of straw by fall disking alone was the same as flooding until March 1 alone (53-54%), suggesting that disking and late flooding may have similar effects on straw reduction. Although the combination of treatments reduced straw the most, the substitution of late winter flooding for fall disking would save MAV rice growers more than $14.00 per acre.

Control of Winter Weeds

A mild winter climate with plenty of rainfall makes the MAV a perfect place for growth of early-season broadleaf weeds and grasses. Known as winter weeds, pest plants such as bluegrass, buttercup, and sourdock are controlled with tillage or herbicides before spring planting.

Holding rainfall until March 1 reduced winter weeds by 78% when compared to fields not flooded in winter. The substitution of late winter flooding for spring disk-harrowing would save MAV rice growers more than $8.50 per acre. The substitution of late winter flooding for an aerial application of a spring "burn down" herbicide would save more than $13.00 per acre.

The substitution of late winter flooding for an aerial application of a spring "burn down" herbicide would save more than $13.00 per acre.

Winter Flooding, Waterfowl, and Red Rice

Red rice is the MAV's number one production challenge, adversely affecting both crop yield and quality. Waterfowl are known to help control red rice by consuming seeds in flooded fields. Waterfowl may not eat all red rice from infested fields; however, seeds eaten can't germinate the following year. Conversely, waterfowl have been implicated as vectors of red rice. This claim is unsubstantiated. Past research has shown no viable red rice seed pass through digestive systems of waterfowl.

Although no winter ricefield-management practice offered complete control of red rice, no-till methods and shallow puddling maximized the chance for red-rice sprouting in fall and waterfowl consumption in winter. Rice growers should not bury seed with heavy tillage only to preserve the red rice seed bank for future years.

In summary, winter-water management showed potential to provide critical habitat for migrating and wintering waterbirds in concert with cost-effective rice-soybean production in the MAV, a region where both commodities continue to increase in planted acres and production.

For more information, contact Scott W. Manley, Ducks Unlimited, Inc., 1902 South Main Street, Suite 4, Stuttgart, Arkansas 72160, or call (870) 673-8781, or fax (870) 673-0535, or e-mail smanley@ducks.org.

Black Duck Status Affected by Harvest

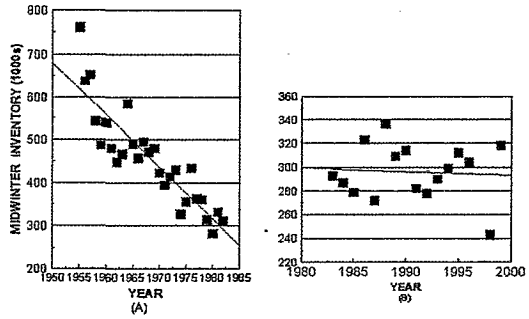
by Jerry Longcore, U.S. Geological Survey

The preliminary findings of our radio-telemetry study to determine black duck survival (*Waterfowl 2000*, Volume 8, Issue 2) indicated that 86% of mortality from all study sites (two sites in Québec, one site in Nova Scotia, and one site in Vermont at the Québec border) was associated with hunting activities.

Mark Petrie (*Waterfowl 2000*, Volume 9, Issue 1) wrote that in New Brunswick "...fewer black duck pairs were able to initiate breeding efforts on the study area because of increased competition with mallards." He based his conclusion on an assumption that mallards were more aggressive than and dominant over black ducks. However, Daniel McAuley (*Waterfowl 2000*, Volume 9, Issue 2), in a large study site in Maine, adjacent to New Brunswick, reported that mallards won 63% of interactions they initiated and lost 15% of those initiated with black ducks, whereas black ducks won 87% of the interactions they initiated and lost none they initiated with mallards. These findings do not support the assumption that mallards were dominant over black ducks, and in fact, mallards were not more aggressive than black ducks during the breeding period.

I reported that brood sizes of black ducks and mallards were not different on wetlands in forested or agricultural landscapes (*Waterfowl 2000*, Volume 11, Issue 3). These data were consistent with the earlier findings of no dominance by mallards, that is, black ducks were able to use the wetlands containing invertebrate foods that were adequate to supply nutrients for black duck broods. Black duck broods were as large as those of mallards.

Midwinter inventory before (A) and after (B) harvest reduction



These findings document that in the absence of losses from hunting, black duck survival can be expected to be reasonably high. . .

Our findings of black duck survival, after partitioning from non-hunting losses, reveal that most deaths were caused by hunting activities during the early (August-October) and the late (November-December) monitoring periods. For the early monitoring period, survival of ducks at Amherst Point, Nova Scotia, was greater than at Kamouraska, Québec (on the south shore of the St. Lawrence River), or at the Vermont-Québec border. All black ducks from Amherst Point that died during the late monitoring period, however, were killed by hunters in Nova Scotia, which offset the higher survival in the early monitoring period. The lowest survival rates were at the Vermont-Québec border where hunters were most abundant and concentrated in Missisquoi Bay of Lake Champlain. Seventy-three percent of the ducks killed at this study site were shot in Québec, where the season was longer and bag limit larger.

The effects of hunting on the black duck population can be factored from survival rates to depict survival in the absence of hunting. For combined years (1990-1991), survival estimates for the early monitoring period ranged from 42-64% among sites when hunting losses were included and 80-96% when hunting losses are excluded. Similarly, for the late monitoring period, survival rates were 47-77% when hunting losses were included and 84-100% when hunting losses were excluded. These findings document that in the absence of losses from hunting, black duck survival can be expected to be reasonably high and seems to be reflected in the Mid-winter Inventory (see figure).

Findings from this study will be published in the *Journal of Wildlife Management*, Volume 64, Number 1.

For more information, contact Jerry Longcore, U.S. Geological Survey, Patuxent Wildlife Research Center, 5768 South Annex A, Orono, Maine 04469-5768, or call (207) 581-2874, or fax (207) 581-3783, or e-mail jerry_longcore@usgs.gov.

Fall-seeded Cereal Crops—A Pintail Sanctuary?

by Jim Devries and Paul Thoroughgood, Ducks Unlimited Canada

The winter cereal study near Parkbeg, Saskatchewan, represented the second year of a 2-year study by the Institute for Wetland and Waterfowl Research. The study was designed to evaluate the attractiveness to upland nesting ducks with a focus on pintails of zero-till, fall-seeded cereals compared to spring-seeded cereals in the Missouri Coteau.

The first year of the study was conducted in the Lake Alma area in 1998. The upland landscape of this area is cultivated, with little native prairie remaining. It provided a contrast in upland conditions as a much larger portion of the landscape remains in native cover. Producers permitted Ducks Unlimited Canada (DUC) to seed fall rye or winter wheat on their properties. The producers received seed, custom seeding, and agronomic advice on growing winter cereals. In exchange, DUC had access to conduct nest searches on the seeded land.

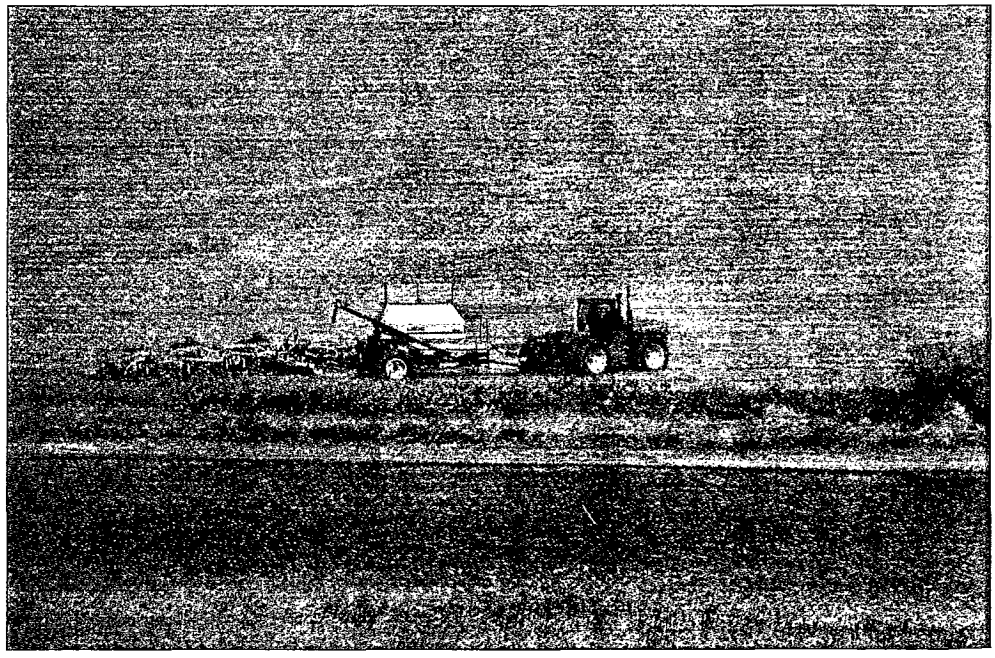
There were 239 nests found on the 2,100 acres of fall rye and winter wheat seeded in the fall of 1998.

Moisture conditions in the Missouri Coteau were good to excellent for waterfowl production during the study, but resulted in seeding delays of up to 1 month in the spring of 1999. Delayed spring seeding resulted in crops that provided little cover until late June or early July, whereas fall-seeded crops provided very good nesting cover, particularly after the end of May.

There were 239 nests found on the 2,100 acres of fall rye and winter wheat seeded in the fall of 1998. Only six nests were found on the 1,950 acres of spring-seeded land. The species composition of the waterfowl nesting on fall-seeded crops was 21% pintail, 40% mallard, and 20% northern shoveler, with the balance of nests being blue-winged teal, gadwall, and lesser scaup. Of the six nests on spring-seeded fields, four were pintail nests and two were mallard. The nest density in the fall-seeded crops were quite similar in the Parkbeg study site (one nest per 7 acres) compared to the Lake Alma Study site (one nest per 9 acres). Nest densities in the spring-seeded fields differed considerably between the two study sites: one nest per 357 acres at Parkbeg versus one nest per 59 acres at Lake Alma. This could be explained by the 1999 spring seeding delay at the Parkbeg site. Nest success was good in the fall-seeded crops during both years of the study (18% in 1998 and 26% in 1999), while nest success was poor in the spring-seeded cereals (6% in 1998 and 1% in 1999).

The excellent moisture conditions during the spring of 1999 not only provided good breeding conditions for waterfowl but also provided excellent conditions for winter cereals to exhibit their yield advantage over spring cereals. An additional benefit of conducting this research program in cooperation with local producers is that these producers will be more likely to be successful winter cereal growers in the future.

For more information, call Jim Devries, Regional Research Biologist, Ducks Unlimited Canada at (204) 467-3316, or Paul Thoroughgood, Agrologist, Ducks Unlimited Canada at (306) 569-0424.



Ducks Unlimited Canada

Late summer seeding of winter wheat into standing stubble provides nest sites for ducks the following spring.

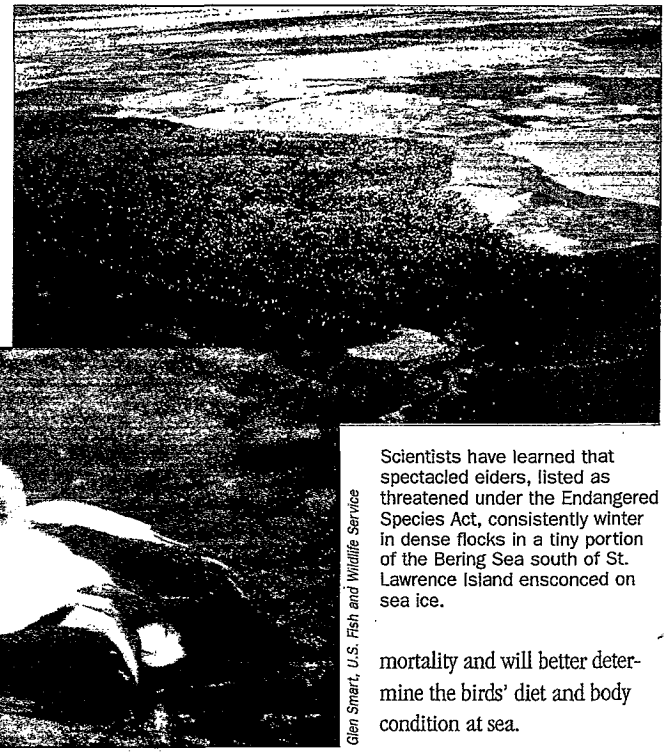
Spectacled Eiders—A Crash Course in Learning?

by Greg Balogh, U.S. Fish and Wildlife Service

It's a too-common scenario with species in decline—our knowledge of a critter is inversely proportional to its abundance.

Twenty-five years ago, we knew spectacled eiders (*Somateria fischeri*) were common breeders on the Yukon-Kuskokwim Delta (Delta) but we knew little about their breeding biology. Six years ago, they debuted on the endangered species list as threatened, and torrents of new information began to pour in from all corners of their range.

Since 1993, scientists have made tremendous strides in filling in the blanks. They've learned that these birds consistently winter in a tiny portion of the Bering Sea south of St. Lawrence Island, ensconced on sea ice. They've also learned of important molting areas in Norton Sound and in Ledyard Bay northwest of Cape Lisburne. In all of these places, dense flocks of birds ride the waves and evade encroaching ice. At sea the birds spend most of their time diving 30-70 meters to feed at sea bottom, where an amazingly large biomass of small clams awaits.



Glen Smart, U.S. Fish and Wildlife Service

Scientists have learned that spectacled eiders, listed as threatened under the Endangered Species Act, consistently winter in dense flocks in a tiny portion of the Bering Sea south of St. Lawrence Island ensconced on sea ice.

However, the diet of many eiders takes an unfortunate twist during the breeding season. Several years ago, biologists on the Delta found several spectacled eiders dead or dying from lead poisoning caused by ingested shot pellets. In 1997, scientists found that over one-third of breeding females on Delta study sites consumed lead pellets by mid-summer, and many eider ducklings also showed lead contamination by 30 days after hatch.

This finding served as a wake-up call to Alaska Native subsistence hunters, who had been using lead shot for decades, and to the U.S. Fish and Wildlife Service (Service), which had not been actively enforcing a 1991 nationwide lead-shot ban for subsistence hunting of waterfowl during spring and summer in Alaska. Staff from the Alaska Department of Fish and Game, Yukon Delta National Wildlife Refuge, and other Service programs turned the situation around. Within 2 years, outreach efforts, steel-shot clinics, Native community support, and renewed law enforcement efforts brought the problem of lead deposition largely under control.

However, the diet of many eiders takes an unfortunate twist during the breeding season.

Scientists continue to refine spectacled eider surveys and estimates of productivity, recruitment, and survival. Cutting-edge genetics research indicates there are three distinct populations of spectacled eiders: one on the Delta, another on Alaska's North Slope, and the third in Arctic Russia. Future research will assess the linkage between lead exposure rate and mortality and will better determine the birds' diet and body condition at sea.

Given the uncertainty as to the cause of the initial decline in spectacled eiders, the ecological turmoil within the Bering Sea, and the continuing threat of lead poisoning from the shot that already exists on the Delta, it's too soon to say whether spectacled eiders are on the road to recovery. A recent report from a Russian scientist that the annual harvest of spectacled eiders in that country may be in the tens of thousands paints a bleak picture; however, recent aerial and ground plot surveys paint a rosier picture of stable populations in Alaska.

As with so many species in decline, our knowledge of eiders grew as their numbers shrank. But, given the stable populations in Alaska and the ongoing research, and the emergence of the North American Waterfowl Management Plan Sea Duck Joint Venture, for spectacled eiders, this pattern is turning around.

For more information, contact Greg Balogh, U.S. Fish and Wildlife Service, Ecological Services-Anchorage Field Office, 605 W. 4th Ave. Room G-61, Anchorage, Alaska 99501, or call (907) 271-2778, or fax (907) 271-2786, or e-mail greg_balogh@fws.gov.

Saving Wetland Serpents

by Kent Prior, Canadian Wildlife Service

Most duck hunters hunkered down in their blinds on Lake Erie or Lake St. Clair are blissfully unaware that they may be sharing the marsh with one of the most seriously threatened snakes in North America—the eastern fox snake (*Elaphe gloydi*). Evaluated as threatened by Canada's Committee on the Status of Endangered Wildlife in Canada in 1999, the species has a restricted distribution, 70 percent of which occurs in southwestern Ontario amidst well-known waterfowl habitats, such as Long Point and St. Clair National Wildlife Areas.

The Eastern fox snake is one of the most seriously threatened snakes in North America.

These large, harmless, brightly patterned snakes favor mainly shorelines and adjacent marshes but are also known to occupy forest-edge and old-field communities. Their habitat preferences and narrow geographic distribution mean that most populations persist in heavily populated regions of North America. These landscapes tend to be characterized by high road density, intensive urban and agricultural development, and elevated levels of industrial pollution.

Just as coastal wetland loss has impacted waterfowl populations, fox snakes have also suffered. Road mortality and geographic isolation through habitat fragmentation continue to chip away at the viability of all populations. The restoration of lower Great Lakes coastal marshlands, through programs such as the North American Waterfowl Management Plan should benefit fox snake recovery.

Two research efforts illustrate how different bits of this species' ecological puzzle are being pieced together. Pelee Island in western Lake Erie is a hotbed of endangered snake research, where fieldwork is being conducted on Lake Erie water snakes (endangered in Canada and threatened in the United States), blue racers (endangered in Canada), and fox snakes.

For 3 years, University of Guelph graduate student Rob Willson has implanted dozens of fox snakes with temperature-sensitive transmitters in an effort to quantify the species' activity patterns and thermal ecology. Combining these data with information on human use of the same landscape should lead to the identification of practical ways for citizens of Pelee Island to help the species recover. For example, shoreline "improvement" has led to a loss of natural debris, in particular, large diameter logs, used by females as sites for egg-laying. Faced with this habitat shortage, Willson has begun an experiment to see whether females will adopt salvaged logs as safe nest sites.

The restoration of lower Great Lakes coastal marshlands, through programs such as the North American Waterfowl Management Plan will benefit eastern fox-snake recovery.

Willson and others have also contributed fox snake blood samples from their research populations to an ongoing study of the species' conservation genetics. Fox snake DNA analyzed by Lisle Gibbs of McMaster University reveals that most populations are genetically isolated from one another. Thus, populations on Georgian Bay, Long Point, Point Pelee, and Pelee Island are demographically distinct and, therefore, highly valued from a conservation genetic perspective.

The lower Great Lakes marshes are now but a "cut-and-paste" remnant of what was once a vast network of high-quality fox snake habitat. In restoring individual wetland patches and stitching this tattered fringe back together, there lies hope for recovery of the fox snake.

For more information, call Kent Prior, Canadian Wildlife Service, at (819) 994-2338, or e-mail kent.prior@ec.gc.ca.

Endangered: Vernal Pools and Fairy Shrimp

by Kelly Geer, Deblyn Mead, and Pat Foulk, U.S. Fish and Wildlife Service

Between 65 and 90 percent of the Central Valley's historical vernal pool habitat has been lost due to agriculture and urbanization.

Larry Serpa, The Nature Conservancy

Larry Serpa, The Nature Conservancy

Fairy shrimp (pictured at top) have adapted to the ephemeral nature of vernal pools (pictured below) with life cycles in which they hatch, mature, and reproduce in as little as 2 to 3 weeks.

Located in the Pacific Flyway, California's vast Central Valley provides habitat for 19 percent of the waterfowl that winter in the continental United States. Moreover, the Central Valley harbors the highest priority wetlands nationally for wintering habitat preservation.

Among the most choice habitats are unique, seasonal wetlands called vernal pools, which occur in the valley's grasslands. These habitats support a wide variety of wildlife, from waterfowl to amphibians—all of which rely on the protein-rich food sources found in these ecosystems.

During the winter, vernal pool depressions fill with rainwater, and as they dry during the spring, brilliant displays of wildflowers erupt on the margins of the pools. By summer, though, the pools appear parched and brown like the surrounding upland.

During the wet phase, a rich community of plants and animals appear in the pools. Some of these organisms, like the tadpole shrimp and the fairy shrimp, depend completely on the ephemeral nature of vernal pools for their existence. A key adaptation of the diminutive shrimp to this alternately wet and dry environment is the production of drought-resistant eggs.

When the vernal pools dry, the eggs remain on the surface of the pool or embedded within the top few centimeters of soil. There they survive the hot, dry summers and cold, wet winters that follow until conditions are right for hatching. Another of the shrimps' adaptations to the short-lived nature of the vernal pool environment is rapid sexual maturity. Some species of fairy shrimp are able to hatch, mature, and reproduce in as little as 2 to 3 weeks. But even with these adaptions for survival, these inconspicuous creatures—the food staple for so many other species—are in trouble.

Between 65 and 90 percent of the Central Valley's historical vernal pool habitat has been lost due to agriculture and urbanization. Vernal pools in Southern California are also gone. In San Diego County alone, 90 to 95 percent of its vernal pool habitat is lost. Of the 25 fairy shrimp species known in California, 5 are Federally listed endangered or threatened species: Conservancy fairy shrimp, longhorn fairy shrimp, Riverside fairy shrimp, San Diego fairy shrimp, and vernal pool fairy shrimp. Another vernal pool crustacean, the vernal pool tadpole shrimp, is also listed.

Protection of vernal pools is essential for the continued survival of these species. Recognizing that vernal pool ecosystems are unique to the State and represent irreplaceable elements of our natural heritage, 13 federal and state agencies in California established an Interagency Vernal Pool Initiative in 1996. This agreement sets up a process to cooperatively conserve vernal pools, while at the same time ensuring that needed economic development proceeds in a timely manner. The conservation work of Central Valley Habitat Joint Venture partners is also helping to assure that these habitats remain a part of the landscape.

Hopefully, with increased public awareness of how these unique ecosystems function for animals, plants, and people, community-based stewardship of vernal pools will evolve so future generations of Californians and native and migrating wildlife can continue to benefit from one of the world's rarest natural systems.

For more information, contact Pat Foulk, 2800 Cottage Way, Room W-2605, Sacramento, California 95825-1846, or call (916) 414-6600, or fax (916) 414-6712, or e-mail patricia_foulk@fws.gov.

Satellites Help Determine Flooding Duration on Texas Rice Farms

by Mark Petrie, Ducks Unlimited, Inc.

The Texas Rice Prairies (TRP) provide some of the most important waterfowl habitat in North America. In some years, over 1 million snow geese and 500,000 pintails winter in the region, where they rely heavily on waste rice.

Unfortunately, rice acreage in Texas has declined 60 percent over the past 15 years because of high production costs relative to other rice growing regions. The 1996 Farm Bill is expected to accelerate this decline as federal price supports are reduced and the requirement that farmers continue to plant rice is removed.

While loss of rice acreage has undoubtedly reduced the carrying capacity of the TRP, the consequences may be particularly severe for pintails and other dabbling ducks. Unlike geese, ducks are largely confined to foraging in rice fields that are naturally or intentionally flooded after harvest. In many years, only a small percentage of all fields contain water, and the loss of rice acreage further reduces the amount of flooded habitat available to ducks. Record numbers of snow geese may further compound the problem by competing with ducks for diminishing amounts of waste grain.

Despite these problems, considerable opportunity exists to restore the traditional function of the TRP from a duck perspective. For example, lands that are idled between rice rotations or removed from production often have an abundance of natural plant species that are preferred as duck foods. Ducks Unlimited, Inc. (DU), in partnership with the Texas Parks and Wildlife Department (Department), the U.S. Fish and Wildlife Service, and the Natural Resources Conservation Service, is working with private landowners in the TRP to increase the amount of harvested and idled rice land that is flooded each winter. These efforts, which are part of the Texas Prairie Wetlands Program, have resulted in over 16,000 acres of flooded habitat.

To assist in this work, DU and the Department are using satellite imagery to identify the amount of seasonal flooding that takes place in the TRP during winter. Individual rice fields are delineated on these images and the frequency and duration of flooding is determined. William Oehmig of Texas, Mike McShane of South Carolina, and the Department provided funds for this work. These estimates of current seasonal flooding will be used by the Gulf Coast Joint Venture to determine the additional habitat needed to support traditional numbers of waterfowl on the Texas Rice Prairies.

For more information, contact Mark Petrie, Ducks Unlimited, Inc., One Waterfowl Way Memphis, Tennessee 38120, or call (901) 758-3825, or fax (901) 758-3850, or e-mail mpetrie@ducks.org.

Québec Millennium Wetland Conferences Drawing Near

Québec 2000

Wetlands are disappearing at an alarming rate. They are being destroyed or degraded by urban expansion, harbour development, agricultural drainage, and other factors.

Wetlands cover 3 to 4 percent of the earth's surface, and are crucial to the survival of many wildlife and fisheries species around the world. Wetlands also provide many economic benefits, including the harvest of natural resource products such as forest woods, shellfish, peat, and wild rice. Recreational hunting, fishing, shoreline and water quality protection, flood control, and nature appreciation in wetland areas also generate significant revenue.

A national and international network of partner organizations made up of government, non-government agencies, universities, and industry is currently planning the *Québec 2000 Millennium Wetland Event* August 6-12, 2000, in Québec City, Canada. The theme of the Millennium Wetland Event is *"to foster the understanding and sustainability of the World's peatlands and wetlands through promotion of positive interactions by the many stakeholders involved nationally and internationally in wetland and peatland science, policy, management, wise resource use and regulation."* The event will draw over 2,000 experts in all aspects of wetland and peatland management and resource use. Its goal is to chart a course for sustaining the wetlands of Canada and the world.

Over 80 scientific symposia, with more than 1,000 invited and contributed papers, as well as training courses and specialized working meetings, comprise the event's conferences. These include the 21st Annual Meeting of the Society of Wetland Scientists, INTECOL VI — the Sixth Global Wetlands Conference of the International Association of Ecologists, and the 11th World Congress of the International Peat Society.

For more information, visit the conferences' website at http://www.cqvb.qc.ca/wetland2000/, or e-mail cqvb@cqvb.qc.ca, or write to The Millennium Wetland Event Secretariat, Suite 620, Le Delta II, 2875 boul. Laurier, Ste-Foy, Québec G1V 2M2 Canada.

Snow Goose Distribution Challenges Québec Partners

by Jean-François Giroux, Université du Québec à Montréal
Bernard Filion, Ducks Unlimited Canada

Québec's greater snow goose population has increased significantly over the past 30 years and in the spring of 1998 totaled 835,000. In fact, the population has been increasing at an annual rate of 9 percent and is doubling every 8 years. Associated with this demographic explosion, major changes in the behavior of geese have been observed by biologists, hunters, and bird-watchers.

Snow geese are foraging increasingly on farmland. Each spring, along Québec's St. Lawrence estuary, geese consume young shoots of fodder plants inflicting serious crop damage. Their impact on southwestern Québec is less dramatic since they prefer to feed in fields of corn stubble, searching for seeds from previous harvests.

Additionally, in fall, geese are abandoning traditionally frequented areas along the estuary and instead are heading to southwestern Québec or directly to the United States, thus reducing opportunities for hunting and observation.

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Biologists are becoming concerned about the integrity of the natural environment used by the geese along the St. Lawrence River as well as the breeding grounds in Nunavut and along the U.S. Atlantic coast where geese winter. An international committee of researchers and wildlife managers, including representatives of Ducks Unlimited Canada (DUC), and Ducks Unlimited, Inc., recently recommended to the Canadian and U.S. governments that the population be stabilized by doubling the hunting harvest and by developing habitats to minimize crop depredation and favor hunting opportunities.

As part of an integrated management action plan, DUC's Institute of Wetland and Waterfowl Research (IWWR) is partly funding a joint study by researchers at the Université du Québec à Montréal and Université de Laval. The 3-year project will cost over $300,000, with $60,000 coming from DUC's IWWR.

The project objective is to study the movements and distribution of geese and available habitats and to experiment with different planning techniques to restore the traditional migration patterns. The project includes the creation of staging areas to curb the negative impact of geese on vulnerable farmland in the Montmagny Regional County Municipality, the use of lure crops to increase hunting success, and the adoption of farm practices favoring soil and water conservation for corn production in the Baie-du-Febvre region. The effects on distribution, residence time, and movements of geese is evaluated through regular inventories of flocks and through intensive spring and fall monitoring of birds tagged with radio transmitters or collars.

Québec is a leader in the research and management of geese populations, thanks to an agreement by various partnerships in applying integrated management based on vital scientific knowledge available from IWWR. This information will be shared among 250 scientists and wildlife managers from Canada, the United States, Europe, and Russia who will gather in Québec City in April 2001 during the 10th North American Arctic Goose Conference and Workshop.

For more information, call Bernard Filion, Ducks Unlimited Canada at (418) 623-1650, or e-mail b_filion@ducks.ca, or call Jean-François Giroux, Université du Québec à Montréal at (514) 987-3000 ext. 3353, or e-mail giroux.jean-francois@uqam.ca.

All Points Bulletin: Pernicious Weed Invades U.S. Wetland Habitats

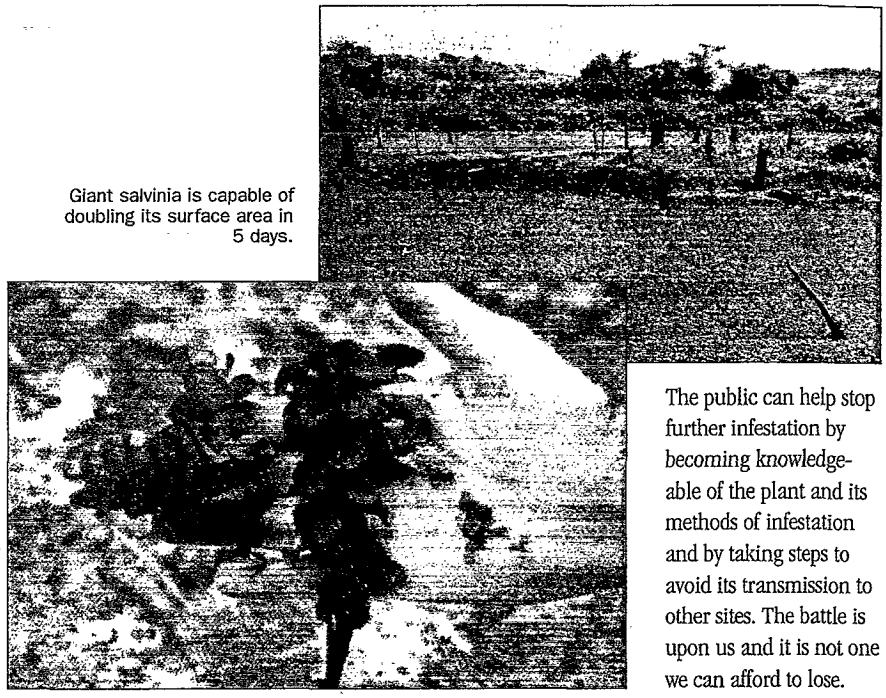
by Ron Jones, U.S. Fish and Wildlife Service

Waterfowl managers are voicing concern about the newest noxious, invasive weed that has appeared in North America's aquatic ecosystems. Giant salvinia (*Salvinia molesta*) has erupted upon the scene and threatens to degrade or destroy valuable waterfowl and waterbird habitats from Georgia to California.

Kelly McDowell, refuge manager at Anahuac National Wildlife Refuge in Texas, witnessed the problem first hand when a 13-acre oxbow lake, in the lower Trinity River delta became covered with the weed in one season. "Vegetation 6-8 inches thick covered the lake and denied waterfowl access," said McDowell. He is concerned that this plant further threatens freshwater systems already heavily degraded.

Giant salvinia is a free-floating water fern native to South America that grows rapidly to cover the surface of lakes, streams, wetlands, and other aquatic sites. It spreads aggressively by vegetative fragments, forming thick mats that shade and crowd out native plants. Giant salvinia is capable of doubling its surface area in 5 days, and mats as thick as a meter have been known to form. These thick mats reduce oxygen content in the water column and exclude the sunlight needed by all living organisms.

Giant salvinia came to the attention of resource professionals in Texas almost 2 years ago. Soon thereafter, a thriving population was reported on public waters at Toledo Bend Reservoir. A national task force was formed at a meeting held in Houston during November 1998. An action plan was drafted and submitted to the U.S. Department of Agriculture to seek emergency funding to help address the issue. Funds to mount an attack on this invader are limited. The battle is currently being waged with herbicides. The U.S. Department of Agriculture is testing a small weevil, *Cyrtobagous salviniae*, as a potential, host-specific, biological control at an infestation site in Liberty County, Texas.



Giant salvinia is capable of doubling its surface area in 5 days.

Since its discovery in Texas, giant salvinia sites have been reported in Louisiana, Mississippi, Alabama, Florida, Oklahoma, Arizona, California, and Hawaii. An outbreak on the lower Colorado River is being addressed by a recently formed, multi-agency strike force. A similar strike force was formed this October to better coordinate the control efforts in southeast Texas.

With this plant now in public waters, opportunities for additional infestations now exist. North America has hundreds of thousands of acres suitable for infestation, from man-made reservoirs and slow moving streams to back-water swamps and freshwater marshes. All of these areas could be lost to this aggressive invader. Much like hydrilla, giant salvinia can easily be transported from water body to water body on boats, boat trailers, and in the intakes of jet skis. Because even small fragments can initiate an infestation, it is thought that waterfowl, nutria, alligators, and even turtles may serve as a vector of infestation.

The public can help stop further infestation by becoming knowledgeable of the plant and its methods of infestation and by taking steps to avoid its transmission to other sites. The battle is upon us and it is not one we can afford to lose.

For more information, contact Ron Jones, U.S. Fish and Wildlife Service, Ecological Service Field Office, Clear Lake, 17629 El Camino Real, Suite 211, Houston, Texas, or call (281) 286-8282, or fax (281) 488-5882, or e-mail ron_jones@fws.gov, or visit website http://nas.er.usgs.gov/ferns.

Giant Salvinia Hotline

To report possible infestations of giant salvinia, contact the aquatic nuisance species toll-free hotline at 1-877-STOP-ANS.

Avian Botulism Revisited

by M.J. Pybus, Alberta Environment, Fish and Wildlife

Avian botulism is a form of food poisoning that occurs in wetlands throughout the world. It is caused by a toxin produced by a virus that infects spores of the bacterium *Clostridium botulinum*. The spores are common in sediments that underlay many waterbodies; however, toxin is not produced until infected spores grow in the presence of high temperatures, lack of oxygen, and decaying organic matter.

Researchers do not know precisely what triggers a botulism outbreak, but often the presence of vertebrate carcasses can contribute to perpetuation and expansion of the problem as substrate for toxin production. In addition, fly larvae that consume toxin in the carcasses, may in turn, be eaten by live birds, putting them at risk of botulism poisoning.

Avian botulism comes in two forms: 1) a mild equivalent to a smouldering ground fire that occurs in many wetlands and results in death of a few birds, and 2) a destructive equivalent to a raging wildfire that results in death of many thousands of birds at one site. Traditionally, the latter form has occurred in the Canadian prairies at lakes where waterfowl and shorebirds congregate during molting and staging periods. Estimates indicate that approximately 1 million birds have died annually from avian botulism in prairie Canada in the late 1990s.

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Management of botulism outbreaks has involved surveillance of lakes and relied on incidental reports of avian mortality by individuals. Follow-up actions entail the collection of carcasses to limit toxin transfer to live birds. Although there is a theoretical basis for such cleanup activities, there is little or no empirical data to suggest its effectiveness.

In the early 1990s, the North American Waterfowl Management Plan's Prairie Habitat Joint Venture established the Avian Botulism Working Group. This multi-agency committee was charged with reviewing current information about avian botulism and providing recommendations to improve its management.

In the summer of 1999, the Working Group began a 3-year prairie-wide program of adaptive management to assess the effectiveness of cleanup and its effects on mortality rates of localized waterfowl populations on four lakes, two with clean up, two without. Results will be reported in future issues of *Waterfowl 2000*.

For more information, call M.J. Pybus, Alberta Environment, Fish and Wildlife, at (780) 427-3462.

Partners in the Avian Botulism Working Group

Alberta Environment, Natural Resources Service

Canadian Cooperative Wildlife Health Centre

Ducks Unlimited Canada

Environment Canada

Institute for Wetland and Waterfowl Research

Manitoba Natural Resources

United States Fish and Wildlife Service

US National Wildlife Health Centre

Utah State University

Working Group Cooperators

Alberta Conservation Association

California Waterfowl Association

Canadian Plan Partners Tour Prairie Projects

by Tim Sopuck, Manitoba Habitat Heritage Corporation

In September, Canada's North American Wetland Conservation Council members, staff, and joint venture coordinators toured North American Waterfowl Management Plan projects in the Prairie Habitat Joint Venture. The tour provided ample evidence that the visions expressed in the 1998 Plan update are coming to fruition in the Canadian prairie landscape.

Hosted by Ducks Unlimited Canada (DUC) and the Delta Waterfowl Foundation, the tour included waterfowl and wetland research facilities and Plan projects in the Minnedosa Pothole Region, one of Canada's best known Plan priority areas.

The trip began at the Delta Waterfowl Foundation's Minnedosa Field Station where many of this continent's waterfowl managers can trace back their graduate-research. Today, Delta's research focuses on the Prairie Pothole Region and each field season their Minnedosa facility supports an average of 10 graduate research projects.

Tour participants learned about the Plan's wider impacts on migratory birds and other wildlife. Cal Cuthbert, DUC's Minnedosa area habitat specialist and one of Manitoba's keenest bird watchers, provided a 10-year perspective on the value of habitats restored by Plan partners for nongame species. His annual breeding-bird-survey transects and field observations suggest that many grassland- and wetland-associated songbirds are increasing in this Plan-influenced landscape.

Robert McLean, Canadian Plan Co-chair, noted that, "It's gratifying to see that a landscape conservation approach in the Minnedosa area seems to be paying off for a broad spectrum of migratory birds."

The tour also included a visit to Manitoba's first conservation-easement site, an 80-acre parcel of wetland and grassland nesting habitat. The Potholes Plus Program, jointly delivered by The Manitoba Habitat Heritage Corporation and Delta Waterfowl, is just beginning to use this conservation tool; Manitoba's enabling legislation for conservation easements is just 1-year-old. Initial results are encouraging. "We expect that most of our long-term securement will be through the easement option," said Lorne Colpitts, Chief Executive Officer for the Manitoba Habitat Heritage Corporation.

Plan partners also visited the Manitoba Zero Tillage Research Farm. The Farm is a 500-acre, pothole-dotted site acquired by Plan partners and leased to a farmer-managed research organization. Its staff conduct demonstrations and field-scale evaluations of conservation farming practices. While the emphasis is on zero tillage, there is also a managed grazing-system demonstration site and a prairie/aspen-parkland conservation area with an interpretive walking trail. Bob Grant, DUC's Brandon area field manager noted, "This partnership with some of Manitoba's most progressive farmers provides tremendous spin-off benefits, not only for prairie farmers, but for all Plan partners."

The tour provided ample evidence that the visions expressed in the 1998 Plan update are coming to fruition in the Canadian prairie landscape.

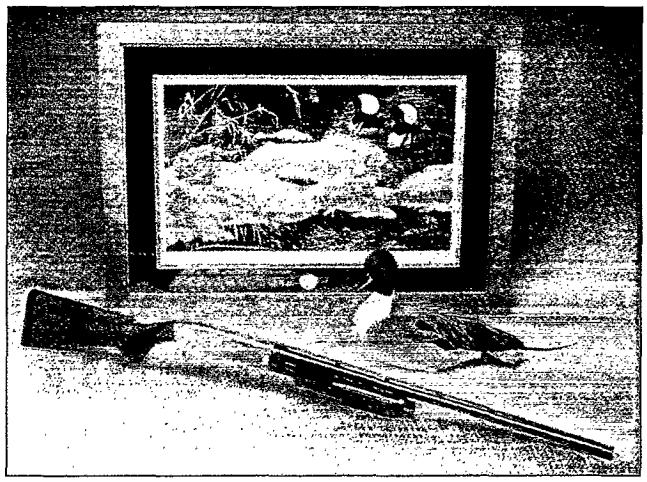
For more information, call Tim Sopuck at the Manitoba Habitat Heritage Corporation at (204) 784-4357, or e-mail tsopuck@mhhc.mb.ca.

Canadian Plan partners experiencing the first signs of the prairie winter winds on a restored native grassland site in the Minnedosa Pothole Region.

Take It Home from Ducks Unlimited

by Eric Keszler, Ducks Unlimited, Inc.

If you are an outdoor enthusiast, you have probably attended one of Ducks Unlimited, Inc.'s, (DU) famous fund-raising events. If you have never attended one, you should—it's a great experience. Just be prepared for a lot of action and a lot of fun.



Ducks Unlimited, Inc.

Attending a Ducks Unlimited, Inc., fund-raising event any time soon? If so, you could be the proud owner of any one of the above items.

Every year, DU features some of the finest items available for outdoor lovers at its events. This year is no exception. Of special interest is the offering of a signed and numbered, resin, wading-pintail decoy. Each purchase of this piece of art qualifies the buyer for a chance to win the original woodcarving valued at $3,000 and donated by Loon Lake Decoy Company. The original work of art will be given away at the DU National Convention in Honolulu, Hawaii, May 10-14, 2000. Attendance is not required to win.

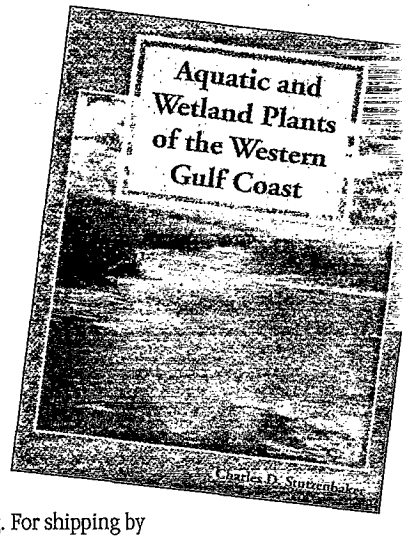
Another piece of art a waterfowler wouldn't want to be without is the Browning BPS 20-gauge shotgun being offered only at DU fund-raising events. The 26-inch barrel with 3-inch magnum chamber ensures reliable performance from the lightest 2 3/4 inch shells to the 3-inch magnums. The barrel is fitted with three Invector Plus choke tubes. The receiver is custom engraved with mallard and Canada goose artwork by DU's 1996/1997 International Artist of the Year, Rob Leslie, and finished in the traditional DU grey by Browning craftsmen. The shotgun features grade 2/3 American walnut stock and forearm, a gold filled DU logo on the trigger guard, and special DU serial numbering.

Also available only at DU events is a limited edition print by celebrated wildlife artist Bruce Miller. *Hooded Mergansers* (pictured) won Mr. Miller DU's top honor for artists: 1999 International Artist of the Year. Mr. Miller, also winner of the 1993 Federal Duck Stamp Competition, is very particular about the waterfowl and wildlife he paints. His scrutiny and professional pride are reflected in some of the most beautiful waterfowl paintings to be seen in years.

The money raised by the purchase of Mr. Miller's art and the other items at DU events will be used to protect, enhance, and restore wetlands for waterfowl and other wetland-associated wildlife.

To attend a DU event in your area, call 800-45-DUCKS or visit DU's website at www.ducks.org.

Aquatic and Wetland Plants of the Western Gulf Coast



The Wildlife Division of the Texas Parks and Wildlife Department has published a new book that fills a long-standing need for a comprehensive, easy-to-use guide to the aquatic and wetland plants of the Gulf Coast from New Orleans to Brownsville (including all of the Texas coast).

Charles D. Stutzenbaker, a wetlands wildlife biologist, describes the habitat requirements, wildlife values, propagation, and management possibilities for over 200 plants, which are illustrated by pen-and-ink drawings and habitat and scale photographs for field identification. The plants are arranged by growth characteristics, ranging from free-floating aquatics to shrubs, and each plant occupies a handy, two-page spread.

The books are available in soft cover for US$29.95 and in hard cover for US$49.95 plus shipping and handling. For shipping by standard mail, add US$3.00 per book. For shipment by overnight mail, add US$7.00 per book. For orders originating in Texas, add 8.25 percent sales tax.

To place an order using a check, money order, or purchase order, contact Melissa Morin, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, Texas 78744, or call (512) 389-4979, or fax (512) 389-4398. For orders using MasterCard, Visa, or American Express, call University of Texas Press at 1-800-252-3206.

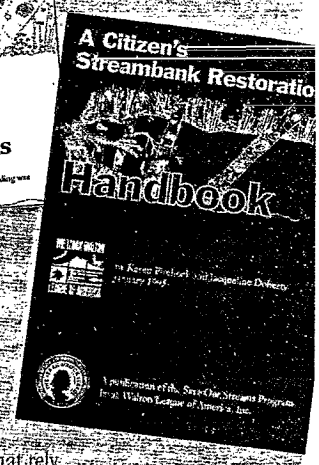
A Citizen's Streambank Restoration Handbook

The Izaak Walton League of America's Save Our Streams Program offers a 111-page handbook that explains how to plan an effective streambank restoration project that uses vegetation and natural stream forces to improve habitat and water quality and restore aesthetic values.

Entitled *A Citizens' Streambank Restoration Handbook*, topics covered include stream ecology, assessing watershed pollution problems, enlisting technical assistance, and designing a stream restoration project. Information about project budgeting, case studies of successful Save Our Streams restoration projects, and an extensive bibliography will also prove helpful.

The book includes a 59-page supplement: *Restoring the Range: A Guide to Restoring, Protecting and Managing Grazed Riparian Areas*. The supplement presents sustainable options for reducing grazing impacts and restoring severely degraded riparian areas. It contains information about constructing upland watering facilities, designing grazing systems, and other grazing and rangeland management techniques.

To order the handbook send US$20 to Izaak Walton League of America, Save Our Streams Program, 707 Conservation Lane, Gaithersburg, Maryland 20878-2983. Add US$4.50 for shipping within the United States and US$6.50 for shipments to Mexico and Canada. To place a Visa or MasterCard order call (800) BUG-IWLA. Outside the United States call (301) 548-0150, extension 208. You may order by fax at (301) 548-0146.



A complementary 28-minute video, *Restoring America's Streams*, will help you learn how to stabilize eroding streambanks and restore degraded streamside forests. The video demonstrates environmentally sound techniques for streambank restoration that rely on wood vegetation and special planting patterns to help hold eroding streambanks in place. These bioengineering techniques provide a holistic approach to protecting water quality.

The video costs US$20.00 plus US$4.50 for shipping/handling within the United States. For shipments to Mexico and Canada add US$6.50 for shipping and handling. Place your orders with the Izaak Walton League of America at the address or phone numbers shown above.

The Right Book for Answers to Coastal Conservation Questions

Would you like to know which federal department has the legislative authority to deal with such issues as fish and wildlife mitigation, or non-indigenous aquatic species, or coastal zone management? Would it be helpful to know the purpose of various conservation laws and what they allow? Have you ever wondered how much salt marsh acreage exists in the continental United States? Would it be useful to know the effects of eutrophication on coastal habitats and what's being done about it? Would you like to know what eutrophication means?

Coastal Challenges: A Guide to Coastal and Marine Issues is a book that provides the answers to those questions and most questions you might have about coastal issues in the United States. Published by the Environmental Health Center, A Division of the National Safety Council (a non-profit, non-governmental, public service organization), it was prepared in conjunction with Coastal America, a multi-agency partnership dedicated to protecting, preserving, and restoring the coastal environment.

This 178-page book is an update and revision to an earlier guide, *Covering the Coasts: A Reporter's Guide to Coastal and Marine Resources*, which was written to help news media report knowledgeably and responsibly on America's coastal and marine resources. Chapters cover the following:

Defining Coastal and Marine Waters; Importance of the Resource: Facts at your Fingertips; Major Coastal and Marine Resource Issues; Key Laws and Associated Programs; Additional Laws and Programs; Key National and Regional Contracts.

To order a copy of *Coastal Challenges: A Guide to Coastal and Marine Issues* send a check in the amount of US$20.00 to National Safety Council, 1025 Connecticut Avenue, NW, Suite 1200, Washington, D.C. 20036. For credit card orders, call Patricia Lawson at (202) 293-2270, extension 486, or e-mail lawsonp@nsc.org. You can also download the PDF document at no cost from website http://www.nsc.org/ehc/guidebks/coasttoc.htm.

And Last, But Certainly Not Least. . .

by Dee Butler, U.S. Fish and Wildlife Service

Editors' Note: We regret having to report that the conservation community has lost a great advocate and friend. Senator Chafee, recipient of the Plan Committee's 1999 International Canvasback Award, died of heart failure on Sunday, October 24, 1999, at Bethesda Naval Hospital. He will be greatly missed.

The Summer/Fall Issue of Waterfowl 2000 profiled two recipients of the North American Waterfowl Management Plan Committee's 1999 National Great Blue Heron Award: Canada's Western Irrigation District and NiSource, a public utility company in United States. The two individuals who received 1999 Plan Committee awards are featured below.

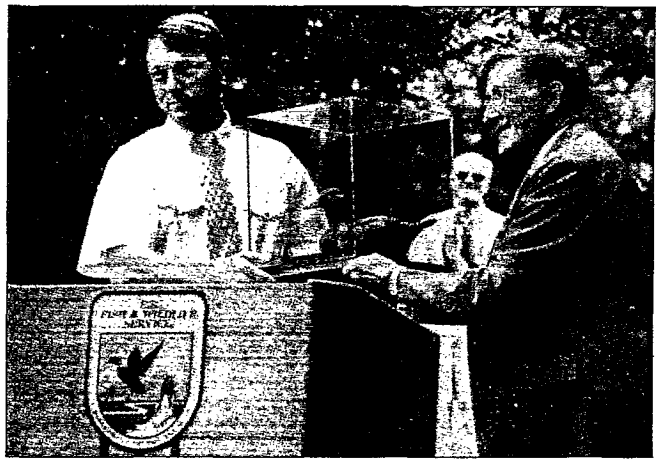
International Canvasback Award

The North American Waterfowl Management Plan Committee presented its prestigious International Canvasback Award to Senator John H. Chafee.

A member of the United States Senate since 1976, Senator Chafee served as Chairman of the Senate Environment and Public Works Committee. Throughout his career, the Senator demonstrated a strong commitment to the conservation of wildlife and their habitats, particularly waterfowl and wetlands. Through his leadership, numerous congressional acts have passed that sustain the implementation and continuation of the Plan throughout North America. The following is a partial list of Senator Chafee's legislative achievements:

- Co-authored the North American Wetlands Conservation Act (Act) of 1989;
- Introduced the re-authorization of the Act in 1998;
- Held several media events in 1998 highlighting the positive effects the Act has on wetlands and waterfowl conservation;
- Authored the Estuary Habitat Restoration Partnership Act of 1998;
- Drafted legislation to improve and establish U.S. National Wildlife Refuges to conserve waterfowl and wetlands (many of these refuges are within joint venture areas);
- Led several efforts from 1986 to 1998 for re-authorization of the Water Resources Development Act;
- Developed and shepherded the Coastal Wetlands Grant Program into law in 1990;
- Led the effort to enact the Emergency Wetland Resources Act, which provided at least $35 million annually for the purchase of wetlands for inclusion into the U.S. National Wildlife Refuge System;
- Drafted legislation to establish the National Fish and Wildlife Foundation, a federally chartered, non-profit corporation to complement conservation activities of the U.S. Fish and Wildlife Service;
- Authored the Coastal Barrier Resources Act of 1982, which added nearly 10,000 acres along 29 miles of coastline to the Coastal Barrier Resources System in Rhode Island alone.

As of July 1999, when the Senator received his award, the North American Wetlands Conservation Act's grant program had provided $288 million in funding for wetlands projects, most of which occur in Plan habitat areas of major concern throughout the continent.



Anne Wagner U.S. Fish and Wildlife Service

North American Waterfowl Management Plan Committee U.S. Co-chair David Smith (left) presents the Committee's International Canvasback Award to Senator John H. Chafee during a ceremony at the Trustom Pond National Wildlife Refuge near South Kingstown, Rhode Island.

Plan Committee Co-chair David Smith presented the International Canvasback Award to Senator Chafee during a ceremony at Trustom Pond National Wildlife Refuge near South Kingstown, Rhode Island. "Conservation needs champions like Senator Chafee," said Smith, "His contribution to the success of the North American Waterfowl Management Plan throughout the continent cannot be overstated."

National Great Blue Heron Award

Michael Szymczak received the third National Great Blue Heron Award presented in 1999. Michael's commitment to wetlands and migratory bird conservation began 30 years ago and has not lessened through the years. In fact, it has become stronger and has proven inspirational to many.

Michael has been a driving force behind the development of the Colorado Division of Wildlife's Wetlands Program. He has nurtured the growth of wetlands conservation in Colorado from a time when projects were small in scope and cost to the present, when projects are complex and cost as much as $10 million. Today, the Colorado Wetlands Program goal is to conserve 100,000 acres of significant wetlands by the year 2005.

Michael has participated in Intermountain West Joint Venture and Playa Lakes Joint Venture activities and Central and Pacific Flyways management efforts. He has been heavily involved in supporting and finding support for the Colorado Duck Stamp Program and for the Partners for Fish and Wildlife Program, both of which have made significant contributions to the conservation and restoration of habitats important to waterfowl and other wetland-dependent wildlife. And finally, Michael was key to the genesis of the $12.5 million Wetlands Initiative Project that will protect,

restore, enhance, and/or create over 15,000 acres of biologically significant wetlands in Colorado by the year 2000.

The Plan Committee knows that individuals like Michael are essential to the delivery of the Plan and deserve recognition. His work goes beyond the local level and is as a model for others. His 30 years of commitment to waterfowl and wetlands conservation have affected two flyways, two Plan joint ventures, and involved millions of dollars.

In July, Plan Committee member Tom Hinz presented Michael with the National Great Blue Heron Award at the Western Association of Fish and Wildlife Agencies Conference in Durango, Colorado. "It's not often we have the opportunity to recognize an entire career of work in the migratory bird field," said Hinz. "Michael Szymczak is one of those few people who have dedicated their entire career doing things to benefit migratory birds and their habitats."

Former North American Waterfowl Management Plan Committee member Tom Hinz (left) presents the National Great Blue Heron Award to Michael Szymczak at the Western International Association of Fish and Wildlife Agencies Conference in Durango, Colorado.

The North American Waterfowl Management Plan's Awards

International Canvasback Award

The highest award made on behalf of the North American Waterfowl Management Plan, the International Canvasback Award is given to those who have made a substantial contribution to the implementation and continuation of the Plan throughout North America over the long-term.

Selection Criteria

1. The nominee initiates or conducts long-standing conservation efforts that result in habitat accomplishments of international significance to North American waterfowl populations.
2. The nominee initiates legislation that results in benefits to North American waterfowl populations on an international scale.
3. The nominee establishes a corporate or public policy that results in substantial accomplishments of international significance to North American waterfowl populations.

National Great Blue Heron Award

The National Great Blue Heron Award recognizes primary participants in the Plan who have made significant contributions over the long-term in either the United States, Canada, or Mexico that result in benefits to waterfowl and other migratory bird populations of North America.

Selection Criteria

1. The nominee gives a gift of land or use of land which is regionally significant in attaining the goals of the Plan.
2. The nominee gives a gift of cash or goods valued at US$10,000 or more made to any of the Plan partners.
3. The nominee initiates a major legislative action. For example, individual members of the U.S. or Mexican Congress or Canadian Parliament and their staffs, or state, provincial, or local legislative bodies establish laws or programs of national or regional significance to waterfowl, other migratory birds, wetlands, or other habitats which help to attain Plan goals.
4. The nominee initiates major administrative actions that provide regionally significant benefits to waterfowl, other migratory birds, and their habitats. This might be an administrative action by a state, provincial, or local government official, a government land manager, or a corporate board that decides to manage his/its property or to market a product that significantly benefits waterfowl, other migratory birds, and wetlands.
5. The nominee has provided distinguished service on the Plan Committee.

Call for Nominations

Nominations for the North American Waterfowl Management Plan Committee's 2000 International Canvasback and National Great Blue Heron Awards close February 1, 2000.

Nomination packets are available from Dee Butler, U.S. Fish and Wildlife Service, North American Waterfowl and Wetlands Office, 4401 N. Fairfax Drive, Arlington, Virginia 22203, USA. (703) 358-1884, or e-mail dee_butler@fws.gov.

In Canada, packets may be obtained from Barbara Robinson, Canadian Wildlife Service, NAWMP Implementation Office, 3rd Floor, Place Vincent Massey, 351 St. Joseph Blvd., Hull, Québec K1A 0H3, (819) 953-9414, or e-mail barbara.robinson@ec.gc.ca.

The Newsletter Has a New Name!

In the Spring issue of *Waterfowl 2000*, the editors asked you to help come up with a new name for the newsletter. . .the old name was running out of time. They asked that the name reflect the North American Waterfowl Management Plan's vision for the future—the feature story in the Spring issue. Readers showered us with 115 suggestions. Of those, the name that we feel best mirrors the vision of the Plan and how Plan partners are manifesting the vision is

Birdscapes

The new subtitle is *News from International Habitat Conservation Partnerships*.

The 1998 Plan update asks current partners to expand their partnerships to include communities, conservationists from other initiatives, and various economic sectors having an interest in the landscapes needed by migratory birds. It calls upon partners to strengthen the biological foundation of their conservation work and to conduct such work within the context of landscapes. The special-feature section in this issue, *Joint Ventures Implement the 1998 Plan Update*, highlights what is being done by Plan partners to fulfill the visions.

Reflecting on the breadth of articles that have appeared in this newsletter over the past 2 years, from stories about waterfowl habitat projects to shorebird workshops, from wetlands protection to prairie restoration, from endangered marsh birds to overabundant geese, from accomplishments of traditional partners to contributions of new partners, *Birdscapes* captures the spirit of the Plan and the evolution of habitat conservation.

The Plan Committee co-chairs wish to express their appreciation to the many partners who have contributed their stories over the years. The newsletter has received excellent reviews and brought much deserved recognition and credit to Plan partners for the phenomenal conservation work they conduct across North America. As Plan partners move into a new age, we are confident that their vitality, enthusiasm, and creativity will continue to foster the standard for landscape-level conservation in North America and that *Birdscapes* will serve well the expanding conservation partnerships.

We are grateful that so many took the time to share their ideas for a new name. They will each receive a signed and numbered copy of one of the North American Waterfowl Management Plan's Collector's Series posters. Posters have featured artwork from Dr. Scott Neilsen, Art Wolfe, Scott Stewart, and Fred Siskind.

Along with a new name, the newsletter will have a new look. You can expect to see both in the Summer/Fall Issue, in 2000.

David A Smith, U.S. Co-chair
Robert McLean, Canadian Co-chair
Humberto Berlanga, Mexican Co-chair

Washington Facts

The following facts were taken from *Wetland Ventures*, a State of Washington newsletter of the Pacific Coast and Intermountain West Joint Ventures. The newsletter's editor gleaned the facts from *Our Changing Nature*, a publication of Washington Department of Natural Resources.

- By 2020, congestion will affect more than 32 percent of Washington roadways, compared to 11 percent in 1995.
- Numerous watersheds, many of them on the west side of the Pacific Crest, are essentially "out of water"—meaning more water rights have been allocated than there is water in the streams.
- In the last 50 years, Washington has lost more than two-thirds of its old-growth forests.
- Forests converted to other land use in the last decade provided storm-water treatment which could cost as much as $2.4 billion to replace.
- The Palouse Prairie of southeastern Washington is one of the most endangered ecosystems in the United States, with only 1 percent of the entire original habitat remaining.
- When it comes to having the most number of water systems that violate the Safe Drinking Water Act, Washington ranks number three.
- Puget Sound has 5,100 acres of contaminated sediments that do not meet State standards.
- Coastal coho salmon harvest dropped from almost 2.5 million fish in 1976 to a few thousand in 1997.

In the same newsletter, John Morgan of the Washington Department of Fish and Wildlife provided this fact:

- 85 percent of Washington's species use riparian habitat, yet since the early 19th century at least half of this habitat has been lost or extensively modified.

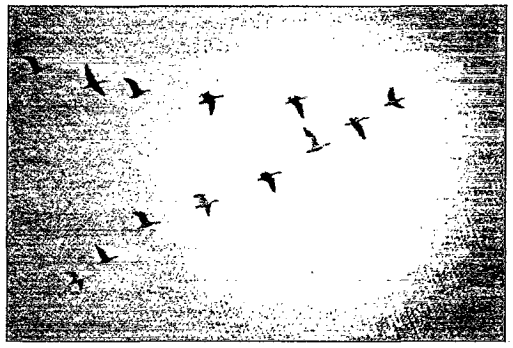
Even with all of the above happening, our never-say-die joint venture partners in Washington are trying hard to reverse the trends. Here are a few facts from the joint venture. Since 1986 they have:

- Protected 51,620 acres of habitat,
- Restored 3,254 acres of habitat,
- Enhanced 5,049 acres of habitat, and
- Spent $124,567,285 doing the work.

Where we would be without our joint venture partners?

For a copy of *Our Changing Nature*, contact Washington Department of Natural Resource's Request Line at (360) 902-1724 and leave mailing address information.

Lessons from Geese



- As each bird flaps its wings, it creates an uplift for others behind it. There is 71 percent more flying range in a V-formation than flying alone.

  People who share a common direction and sense of common purpose can get there quicker.

- Whenever a goose flies out of formation, it quickly feels the drag and tries to back into position.

  It's harder to do something alone than together.

- When the lead goose gets tired, it rotates back into the formation and another goose flies at the head.

  Shared leadership and interdependence gives us each a chance to lead as well as opportunities to rest.

- The geese in formation honk from behind to encourage those up front to keep up their speed.

  We need to make sure our honking is encouraging and not discouraging.

- When a goose gets sick or wounded and falls, two geese fall out and stay with it until it revives or dies. Then they catch up or join another flock.

  Stand by your colleagues in difficult times as well as in good.

We received these insightful observations from the U.S. Fish and Wildlife Service's Regional Office in Anchorage, Alaska. Authorship is unknown. If you know who deserves the credit, please contact Dee Butler. Contact information is on the back page of the newsletter.

E-mail

Lisa's note was in response to an e-mail request and reply to have her name added to the Waterfowl 2000 *mailing list. The newsletter is posted on the Internet, and requests for names to be added to the mailing list are received daily. We are sharing this note with you to let you know your stories make a difference.*

Thanks so much for the FAST response! Besides being the State Nongame Specialist for Minnesota's southwestern region, I also am the designated shorebird representative for the Minnesota Department of Natural Resources. I've been actively involved with the national and regional shorebird plans and am highly interested in working to integrate this with existing NAWMP (North American Waterfowl Management Plan) implementation. Awhile ago, I read an article in *Waterfowl 2000* about successful shorebird efforts in Saskatchewan. As a result, I contacted the listed parties and am receiving details which I hope will be helpful to us here. I look forward to seeing additional articles which stress landscape-level, ecosystem-based approaches to management.

Thanks again,

Lisa Gelvin-Innvaer
Minnesota Department of Natural Resources

Change of Address

When requesting a change of address for the mailing of *Waterfowl 2000*, PLEASE include the *Waterfowl 2000* mailing label or a photocopy of the label. Those who update the *Waterfowl 2000* mailing list need the code appearing on the label to facilitate the change. Thank you.

A new reader, Mark Felton, George Butler Associates, Inc., St. Louis, Missouri, sent us this quote. It seems relevant to this period in migratory bird conservation history—although, we doubt that Heraclitus had bird conservation in mind when this thought popped into his head.

"You can not step into the same river twice."

Heraclitus

Waterfowl 2000 Submissions

Submit Canadian articles and letters to Barbara Robinson, Canadian Wildlife Service, NAWMP Implementation, 3rd Floor, Place Vincent Massey, 351 St. Joseph Boulevard, Hull, Québec K1A 0H3, or e-mail barbara.robinson@ec.gc.ca or nawmp@ec.gc.ca.

Submit United States articles and letters to Dee Butler, U.S. Fish and Wildlife Service, North American Waterfowl and Wetlands Office, 4401 N. Fairfax Drive, Room 110, Arlington, Virginia 22203, or e-mail dee_butler@fws.gov. Website: www.fws.gov/r9nawwo/index.html.

Submit Mexican articles and letters to Elisa Peresbarbosa, Dirección General de Vida Silvestre, Instituto de Ecología.A.C., Km 2.5 Antigua Carretera a Coatepec, Ap. Postal 63, Xalapa, Veracruz 91000, or e-mail eperes@edg.net.mx.

Submission Guidelines

Word Limit for Articles: 500
Word Limit for Letters: 250

Suggested Topics: North American Waterfowl Management Plan activities related to biological diversity, environmental quality, landscape and ecosystem management; new projects; project updates; policies; research results; and technical information on wetland management.

Format: Provide articles in a file on diskette with hard copy or by electronic mail. Files should be unformatted and convertible to WordPerfect 6.0. At the top of the page, include the author's name, organization, address, telephone number, fax number, e-mail address, and number of words.

Photographs: Submit color or black-and-white photographs or 35mm slides. Provide a caption and the photographer's name and organization.

Deadlines: Spring issue, February 1; Summer/Fall issue, June 1; Winter issue, October 1.

About The North American Waterfowl Management Plan

In 1985, waterfowl populations had plummeted to all-time recorded lows. The wetlands habitat that waterfowl depended upon for survival was disappearing at staggering rates in the United States and Canada. Something had to be done.

Recognizing the economical and recreational importance of waterfowl and wetlands to North Americans and the need for international cooperation to help in the recovery of a shared resource, the Canadian and United States governments asked their scientists to develop a strategy to restore waterfowl populations. A strategy of wetland habitat protection, restoration, and enhancement was documented in the North American Waterfowl Management Plan (Plan) signed in 1986 by the Canadian Minister of the Environment and the United States Secretary of the Interior. In 1994 the Secretario de Desarrollo Social México joined as a signatory, making the Plan's continental vision a reality.

The Plan's perspective is international in scope, but its implementation occurs at the regional level. Its success is dependent upon the strength of partnerships, called joint ventures, involving government agencies, industry, hunting and fishing groups, conservation organizations, and individual citizens. Plan projects advance waterfowl conservation and contribute toward the preservation of all wetland and associated upland species.

There are nine habitat joint ventures in the United States and two in Canada. One additional habitat joint venture has international status, its boundaries crossing the Canada-United States border. Two international species joint ventures also were established to address monitoring and research needs of specific species or species groups.

This newsletter tells their stories.

Waterfowl 2000

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